# Call-A.P.P.L.E.™

Volume VI, Number 7 July 1983 $2.50 ($3.00 Canada, £1.75 UK.)


A Call —A.P.P.L.E. TECHNIQUE:

## 80-Column //e Low-Res Graphics

Page 9

A SPECIFIC SOLUTION:

## "Betcha Dollars to Apples . . ."

Page 15

PASCAL PROGRAM FILE HANDLING:

## The Inside Story

Page 21

AN APPLE FOR THE TEACHER:

## 30 Crates of Apples

Page 31

Apple PugetSound Program Library Exchange

# REMEMBER:

"NEVER FORGETS."

## MORE THAN JUST ANOTHER PRETTY FACE.

Says who? Says ANSI.

Specifically, subcommittee X3B8 of the American National Standards Institute (ANSI) says so. The fact is all Elephant™ floppies meet or exceed the specs required to meet or exceed all their standards.

But just who is "subcommittee X3B8" to issue such pronouncements?

They're a group of people representing a large, well-balanced cross section of disciplines—from academia, government agencies, and the computer industry. People from places like IBM, Hewlett-Packard, 3M, Lawrence Livermore Labs, The U.S. Department of Defense, Honeywell and The Association of Computer Programmers and Analysts. In short, it's a bunch of high-caliber nitpickers whose mission, it seems, in order to make better disks for consumers, is also to make life miserable for everyone in the disk-making business.

How? By gathering together periodically (often, one suspects, under the full moon) to concoct more and more rules to increase the quality of flexible disks. Their most recent rule book runs over 20 single-spaced pages—listing, and insisting upon—hundreds upon hundreds of standards a disk must meet in order to be blessed by ANSI. (And thereby be taken seriously by people who take disks seriously.)

In fact, if you'd like a copy of this formidable document, for free, just let us know and we'll send you one. Because once you know what it takes to make an Elephant for ANSI . . .

We think you'll want us to make some Elephants for you.

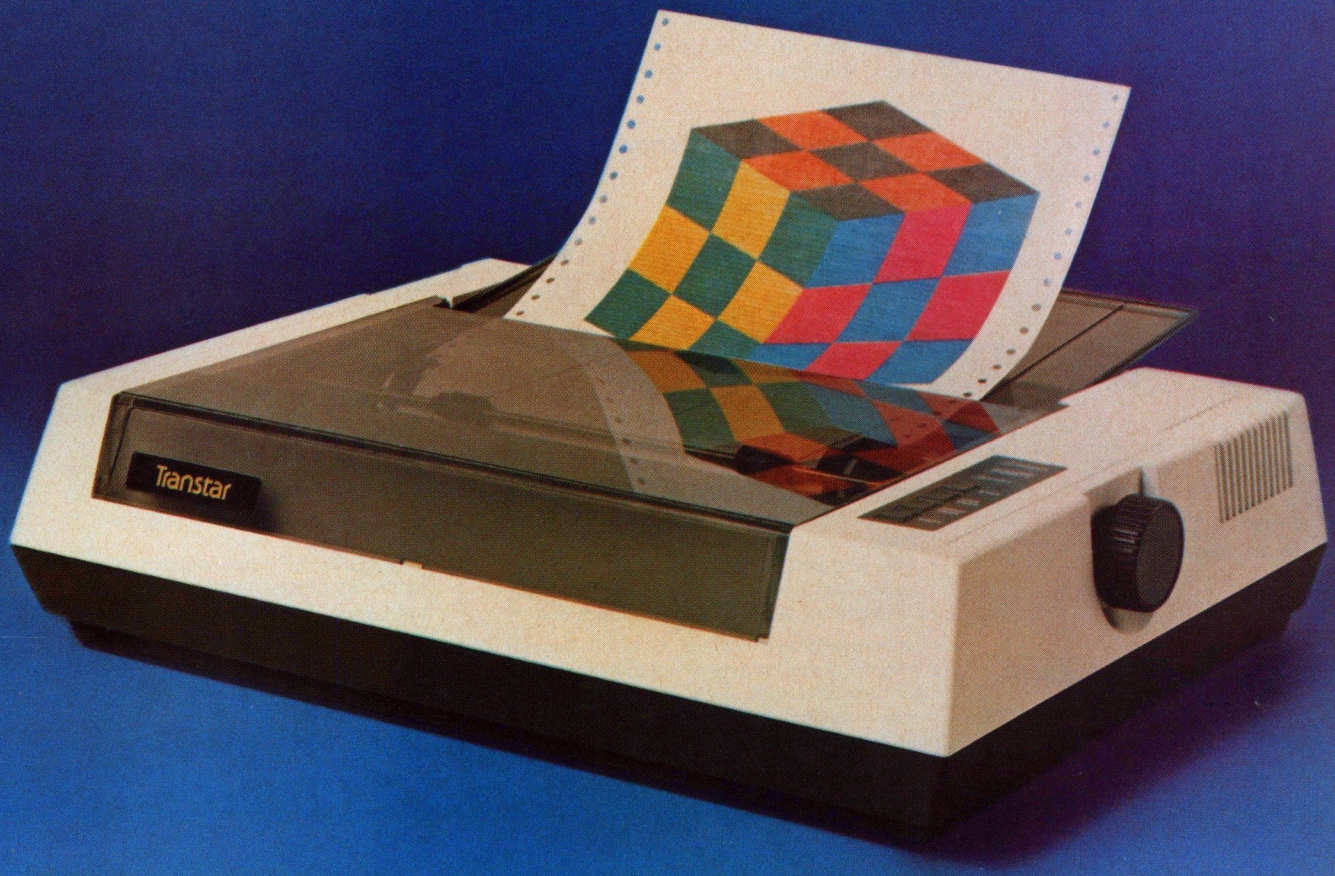
## ELEPHANT.™ HEAVY DUTY DISKS.

For a free poster-size portrait of our powerful pachyderm, please write us.

Marketed exclusively by Leading Edge Products, Information Systems and Supplies Division, 55 Providence Highway, Norwood, MA 02062. Dealers: Call toll-free 1-800-343-8413; or in Massachusetts, call collect (617) 769-8150.

Circle 17 on Reader Service Card

# Color for the Price of Black and White




# Transtar 315

## Color Printer for only $599 suggested retail price

- New technology four-hammer print head
- Unique diagonal ribbon provides simpler and more reliable operation
- Prints 7 colors plus more than 30 shades
- All colors and shades are printed in a single pass of the print head
- Built by Seikosha, the oldest manufacturing company of the famous Seiko group—providing precision products since 1892.

**Transtar** · Box C-96975 Bellevue, Washington 98009

Circle 29 on Reader Service Card

APPLE PUGETSOUND PROGRAM LIBRARY EXCHANGE:

# CLUB INFORMATION


**GENERAL OFFICES**
21246 68th Ave. S.
Kent, WA 98032 — (206) 872-2245
Hours: 9 - 4 Monday - Friday
Members Services/Dealer Orders

**EDITORIAL DEPARTMENT**
5606 California Ave. S.W.
Seattle, WA 98136—(206)932-8288
Hours: 8-4 Monday - Friday

**ADVERTISING REPRESENTATIVES**
Grawin Publications
1020 Lloyd Building
Seattle, WA 98101 (206) 223-0861


## MEETING NOTICES

**7:30 PM, Tuesday, July 19, 1983**
A.P.P.L.E. Office
21246 68th Ave. S., Kent
**Speaker to be announced**

**7:30 PM Tuesday, Aug. 16, 1983**
A.P.P.L.E. Office
21246 68th Ave. S., Kent
**Speaker to be announced**

**7:30 PM, Tuesday, Sep. 19, 1983**
A.P.P.L.E. Office
21246 68th Ave. S., Kent
**Speaker to be announced**

### Call —A.P.P.L.E. HOTLINE

Technical/programming assistance only

**DAYTIME HOTLINE: (206) 872-9004**
9 AM - 3 PM Only
**Mon. - Fri. Only**

**EVENING HOTLINE: (206) 932-6588**
6 PM - 10 PM
7 days per week

**WEEKEND HOTLINE: (206) 932-6588**
9 AM - 3 PM
6 PM - 10 PM
Sat. - Sun.

All times shown are PACIFIC time.

## Membership Information

Please direct telephone questions on membership and orders to (206) 872-2245.

| | |
|---|---|
| One Time Apple—Cation Fee | $25.00 |
| Annual Dues | $20.00 |
| Total | $45.00 |

**Additional postage required for foreign memberships and shipments.**

Additional membership postage:

- Canada, West Indies, Central America, Columbia, Venezuela and Mexico — Add $15.00 ($60.00 total)
- All S. American countries (except above), Europe and N. Africa — Add $21.00 ($66.00 total)
- Asia, Mid East, S. Africa, Australia and Pacific Islands — Add $27.00 ($72.00 total)

All orders must be prepaid in U.S. funds only.

Membership is on an annual, 12 month basis, commencing with the month of enrollment. Upon receipt of total membership fees, new members will receive an Apple—Cation blank, order form and description sheet of club products.

Please allow up to 30 days for a turnaround on membership and orders.

Call —A.P.P.L.E. is mailed free twelve time per year as benefit of membership. Subscriptions are not available.

198. back issues available at $2.50 each.

Call —A.P.P.L.E. bound volumes for previous years are available as indicated on the member order form on the last page.

Institutional memberships are now available. Contact General Office for details.

Prospective authors please send a large self-addressed stamped envelope (37¢ postage) to Editorial Dept. for a copy of Author's guidelines.


Cover and interior design by Vic Warren Design.


**A.P.P.L.E. on the SOURCE**

A special section of The Source is open only to A.P.P.L.E. members who may download Call -A.P.P.L.E. programs. To access, type:

CALL-APPLE from Source command mode. To register, send mail to ST1570 with your name, membership number, expiration date and Source account number.

Changes of address must be received at the General Office at least 30 days prior to effective date of move. Issues missed due to non-receipt of change of address notification must be separately reordered by the member at current cost. Change of address form may be found on page 78 of this issue.

**A.P.P.L.E. CRATE BULLETIN BOARD**
(206) 935-9119
(usually 24 hours)

### Officers and Directors

| | |
|---|---|
| Dick Hubert, President | (206) 271-6939 |
| Bob Huelsdonk, Vice President | (206) 362-4910 |
| Dave Lingwood, Secretary | (206) 244-9360 |
| Bob Clardy, Treasurer | (206) 641-1917 |
| Val J. Golding, Director | (206) 932-6588 |
| Ken Smith, Director | (206) 322-4199 |
| Don Williams, Director | (206) 242-6807 |

### Office Staff

| | |
|---|---|
| Dick Hubert | Executive Director |
| Don Steele | Assistant to Executive Director |
| Dave O'Leary | Controller |
| Sally Davies | Manager of Operations |
| Arliss Sword | Dealer Orders |
| Susie Johnson | Acting Special Projects Coordinator |
| Gunter Hirt | Bookkeeping, Member Records |
| Joff Morgan | Technical Operations |
| Cheryle McCalmant | Order Processing |
| Kris Mortenson | Order Processing |
| Sharon Birdsell | Order Processing |
| Gayle Rank | Secretary/Receptionist |
| Mike Christensen | Systems Development |
| James Redhed | Receiving |
| Brad Phillips | Shipping/Receiving |
| Steve Johnson | Technical Staff Manager |
| Garry Reinhardt | Systems Development |
| Butch Greathouse | Technical Support |
| Charles Stillman | Manager of Education Services |
| Kevin O. Donohoe | Manager of Marketing |

### Magazine Staff

| | | |
|---|---|---|
| Val J. Golding | Editor | (206) 932-8288 |
| Kathryn Hallgrimson | Associate Editor | (206) 932-8288 |
| Kathy Pride | Editorial Assistant | (206) 932-8288 |
| Jonathan V. Post | Contributing Editor | (206) 824-7641 |
| Bruce van Norman | Pascal Editor | (206) 932-8288 |
| Jim Hockenhull | Staff Writer | (509) 334-4137 |
| Clifton M. Howard, M.D. | Staff Writer | (201) 768-9274 |
| Paul Mosher, M.D. | Staff Writer | (518) 765-4118 |
| Bill Parker | Staff Writer | (619) 297-9343 |
| Lee Reynolds | Staff Writer | (305) 722-2639 |
| Clay Ruth | Staff Writer | (219) 865-6165 |
| David G. Sparks | Staff Writer | (319) 232-2313 |
| Ralph H. Swerdlow, M.D. | Staff Writer | (916) 920-8709 |
| Grawin Publications | Production, Advertising | (206) 223-0861 |


**A.P.P.L.E. consultants will be found on page 79 of this issue.**

# Call-A.P.P.L.E.™

Volume VI, Number 7 July 1983/Menu

Val J. Golding, Editor
Kathryn Hallgrimson Suther, Associate Editor

## ENTREES

**9** A Call —A.P.P.L.E. TECHNIQUE:
**80-Col. //e Low-Res Graphics**
Rob Moore

**15** A SPECIFIC SOLUTION:
**"Betcha Dollars to Apples..."**
Peter C. Lincoln, Ph.D.

**21** PASCAL PROGRAM FILE HANDING:
**The Inside Story**
Chris W. Green

**31** AN APPLE FOR THE TEACHER:
**30 Crates of Apples**
Wes Felty

## À LA CARTE

**35** A Call —A.P.P.L.E. SOFTWARE REVIEW:
**Arcademic Skill Builders**
Kathryn Hallgrimson Suther/reviewer

**38** **Apple Art**
Jack Bender

**39** JAPAN MICROCOMPUTER SHOW:
**Apple Blossoms**
Val J. Golding

**43** WHY YOU SHOULD INVEST IN A DATA BASE:
**Confessions of a Cheapskate**
Alan D./Valerie A. Floeter

**47** **Northern Spy**
Rick Sutcliff/Call —A.P.P.L.E. staff writer

**53** **Parkinson's Law**
Robert A. Greenwald

**55** **A.P.P.L.E. Doctor**
Bruce Field

**59** A Call —A.P.P.L.E. BOOK REVIEW:
**Enhancing Your Apple**
James Hockenhull/reviewer

**62** A Call —A.P.P.L.E. TECHNOTE:
**Grappler+/MX-80 with Graftrax**
Ken Kashmarek

**65** A Call —A.P.P.L.E. SOFTWARE REVIEW:
**The Game of Life**
Val J. Golding/reviewer

## HORS d'OEUVRES

5 The Editor Bytes Back
the editor

5 BOOT
Craig MacIntosh

7 Bytes From Apple
Val J. Golding

7 So What Did You Expect Dept.?
Garth Baulch

60 American Flag
Alan C. Young

67 Write —A.P.P.L.E.
the readers

72 Tomorrow's Apples Today
Kevin O. Donohoe/editor

78 Writing the Wrongs
the wrongdoers

79 Call —A.P.P.L.E. Consultants

79 A.P.P.L.E. Order Form

80 Call —A.P.P.L.E. Unclassifieds

Apple user groups may reprint without prior permission any portion of the contents herein, provided author, title, and publication credits are given and a written notice of such use furnished to the editorial office. For commerical applications of programs herein, the author should be contacted c/o General Office. Call —A.P.P.L.E. is published monthly by Apple Puget Sound Program Library Exchange, 21246 - 68th Ave. S., Kent, WA 98032. Subscriptions are not available but copies are mailed free as a benefit of A.P.P.L.E. membership.

Entire contents copyright© 1983 by

Apple PugetSound Program Library Exchange

## The Solution to Applesoft . . .

# THE ROUTINE MACHINE

Now, from the programming experts of Southwestern Data Systems, an easy-to-use way of putting the POWER and SPEED of Machine Language routines in YOUR OWN Applesoft programs!

ROUTINE MACHINE does all the work for you! No knowledge of machine language programming, whatsoever, is needed. Simply choose the function you want from an ever-growing library and Routine Machine puts just that routine in your program. Over two years in development, we've made it all completely transparent — no need to bother with BLOAD'S, HIMEM:, etc. — and it's COMPATIBLE WITH APPLE II AND APPLE IIe!

Each Library Package is so packed with useful routines that it's impossible to do more here than just list the names! So get out your magnifying glass! Call or write for more information. Better yet, order now from your local dealer. All of our software is unconditionally guaranteed!

## THE ROUTINE MACHINE

The main "librarian" of the series, this package includes not only the Routine Machine itself, but all of these commonly needed routines:

| | | | | | |
|---|---|---|---|---|---|
| Variable Swap | Error Messages | Hires Characters | Print Using ($.00) | Calculated Goto | Turtle Graphics |
| Text Output | Calculated Gosub | Fast Bload | String Input | Line # Data Restore | Binary Address Read |
| String Search | Data Element Select | Reset Run | Array Search (1D) | Hex/Dec Convert | Reset Boot |
| Bubble Sort (1D) | Memory Move | Reset Onerr | Tones | Pointer Read | |
| Sound Effects | Pointer Write | Shape Table Converter | Error Handling Routine | | |

**$64.95***

## &CHART™ — $49.95*

**Library Disk**

This package contains a Hi-Res chart graphics (plotting) library of routines that really helps with those custom graphics programs. Doing stock analysis, sales forecasts, scientific applications or even just plotting the monthly budget, & CHART makes the job much easier! Routines and functions include:

| | | |
|---|---|---|
| Page/Mode Display | Vertical Labels | Zoom/Unzoom |
| "Work" Page Select | Horizontal Labels | FP Program Splitter |
| Clipping Windows | Grid Pattern | 3D to 2D Transform |
| Full User Scaling | Log Scaling | Epson Screen Dump |
| Window Reverse | Arc Generation | Median Filter |
| Window Clear | Polar Charts | Window Frame |
| Axes Generation | Pie Charts | Area Fill |
| Fast Hires Load | Tic Mark Control | Fast Hires Save |

## &ARRAY™ — $49.95*

**Library Disk**

This Library Package is dedicated to doing just about everything you ever thought possible (and some impossible) to an Applesoft array. With the tremendous number of routines in this package, you'll agree it's a bargain at twice the price. All routines work with two-dimensional arrays, many times with both string AND numeric data! In addition, routines are provided to perform virtually any usual mathematical operation on an entire array in ONE statement! For example, you could multiply every element in an entire array by a factor in one statement. You could also define a given array as the product of two other arrays. Over a year in development, this is a real bargain! Just some of the many routines are:

| | | |
|---|---|---|
| Fast Disk Read | Array Rounding | USR Function Library |
| Fast Disk Write | Matrix Identity | Fast FP Run |
| Search | Matrix Transpose | Fast Brun |
| Sort | Matrix Multiply | Hex Poker |
| Delimited Strings (1D) | Matrix Inverse | Keyboard Scan |
| Rename | Array Randomize | FP Onerr Fix |
| Clear | Array VAL | RP Rnd Fix |
| Redim (no data loss) | Array STR$ | FP Return Fix |
| Row/Column Add | Row/Column Delete | Fast Garbage Routine |

## &SCREEN™ — $49.95*

**Library Disk**

An extraordinary collection of screen related routines, this disk is dedicated to text display and input for the Apple II/IIe. For starters, the Screen Generator/Screen Processor allows you to design an entire input or output screen format, and then have the entire screen executed as one or two statements. This is useful for reports, menus, data entry and more. In addition to the Screen Processor, the following routines are also included:

| | | |
|---|---|---|
| Input Using | Speed Control | Control Char Display |
| Input With Editing | Print Pause | Lower Case Input |
| 4 Way Scrolling | Keyboard Click | Special Line Scroller |
| Musical Keyboard | Printer Control | Center/Justify Strings |
| Screen Dump | Print Repeat | Clear Screen |
| Memory Dump | Memory Disassemble | Cursor Mouse Routine |

## &SAMPLER I™ — $49.95*

**Library Disk**

This disk is a collection of a wide variety of useful routines written by Peter Meyer, author of the Routine Machine, and other professional programmers.

| | | |
|---|---|---|
| Number Input | Catalog Modifications | String Execute |
| If-Then-Else | Disk File Data | Write Protect Sense |
| Controlled Get | Catalog to Array | FP Program Erase |
| Print Hex | File Selector | Speed Up Applesoft |
| Print Binary | FP Disk RWTS | Modified Chain |
| String Character Strip | Disk Sector Map | Slot Drv Vol Select |
| String Left/Right Fill | Find Free Sector | Disk Catalog Sort |
| String Overlay | Mark Sector | Push Button Read |
| Shellsort (1D) | Disk R/W String | |

***Plus $3.00 Shipping. (California Residents Add 6% Sales Tax.)**

### More to Come!

In addition to all these Library Packages, even more are in development!

**The ROUTINE MACHINE and its Library Packages really WILL make the difference in your programming! Try out these programs and if you aren't convinced that the ROUTINE MACHINE is one of the best programming innovations to come along in years, we'll gladly refund your purchase price within 30 days of purchase, with return of product.**

**Ask your Local Apple Dealer or Ask Him to Contact:**

## southwestern data systems™

10761 Woodside Avenue • Suite E • P.O. Box 582-C • Santee, California 92071 • (619) 562-3221

Circle 44 on Reader Service Card

# THE EDITOR BYTES BACK

**the editor**

BEFORE we introduce this months features, we want to talk about a new service we're pretty proud of, because we believe it's going to help you as much as it helps us. Actually, we snuck this one in last month without any ballyhoo at all.

Remember the reader service card we started last March? There were two postage-paid cards stapled in **Call -A.P.P.L.E.,** one for reader service and one for membership information. This left a blank card, a "pickle in the middle," and when we saw that extra card, we immediately decided to put it to work. After cogitizing a bit, we came to the conclusion that we could best serve **your** interest with a "Reader's Choice".

We have pitched from time to time that we want to know the stories you like and the stories you want to see in **Call -A.P.P.L.E.,** so here is your chance, in the form of an easy to use, tear-out, postpaid card, with two big plusses. All you have to do is rank in order the ten features you most enjoyed, mark the numbers in the boxes and drop the card in a mail box.

Not only will we be guided by your choices, but A.P.P.L.E. members who fill in their membership number will have their names placed in a drawing for $100 credit toward A.P.P.L.E. products, **and** the highest scoring author will receive a $100 cash bonus! So all you folks out there in computerland, keep those cards and letters coming in. . .

And now, the menu. . .

From all reports the Apple //e is selling like the proverbial flapjacks, and we have been hitting hard and heavy to keep //e information flowing to you. We've heard a lot about the "super High-Res" mode, using the extended text card, but nothing has been mentioned (including the //e reference manual), about **80-Column Low-Res Graphics for the //e. Rob Moore,** however, returns to our pages with just such a technique. You can read about it on page 9.

From Hawaii, **Peter C. Lincoln** provides **A Specific Solution** in **Betcha Dollars to Apples . . .** to some of Applesoft's problems in decimal and dollar formatting. This is one subject that has literally flooded the Hotline, so look inside for the answers.

World traveler **Chris Green,** who has recently moved from Singapore to Djakarta, returns to tell **The Inside Story** of **Pascal Program File Handling,** a feature we're sure Pascal users will find of interest.

Education again grabs the number four spot on our cover, as **Wes Felty** describes the problems involved when a school district is faced with unpacking **Thirty Crates of Apples,** and right behind this, Associate Editor **Kathryn Hallgrimson Suther** reviews a few "arcademic" math packages.

In **Confessions of a Cheapskate,** the **Floeters, Alan and Valerie** have returned to tell of their travails in writing several data bases and why they finally ended up with a commercial program.

There is so much more to tell you about, like **Bruce Fields' A.P.P.L.E. Doctor and Jim Hockenhull's** book review of **Enhancing Your Apple,** but we're just plumb out of space, so let your eyes do the walking to the Table of Contents for a whole bunch more of hard to pass up features. . .

# BOOT

Craig MacIntosh

☐ APPLE ☐ EAGLE ☐ IBM, PC ☐ NORTHSTAR ☐ TRS-80 II 8" ☐ OSBORNE ☐ FRANKLIN ☐ STANDARD CP/M 8" ☐

☐ ACCOUNTS PAYABLE ☐ MAILING ☐ SPELLING ☐ COMMUNICATIONS ☐ REAL ESTATE ☐ TAXES ☐ STOCK MARKET ☐ INVENTORIES ☐ HEATH/ZENITH 89 8"

☐ XEROX 820 ☐ GAMES ☐ COMPILERS ☐ UTILITIES ☐ BUSINESS ☐ ACCOUNTING ☐ SPREAD SHEETS ☐ MEDICAL ☐ DENTAL ☐ PAYROLL ☐ GENERAL LEDGER

# RENT SOFTWARE BEFORE YOU BUY!

from our

# SOFTWARE RENTAL LIBRARY

**You can now RENT the most popular software available for just 20-25%* of Manufacturers' Retail Price**

- Eliminate the risk—rent first!
- 100% of rental fee applies toward purchase
- All purchases are 20% Off of Manufacturer's Suggested List
- Rentals are for 7-days (plus 3 days grace for return shipping)

## SPECIAL INTRODUCTORY OFFER

There are now 2 different plans to choose from:

| | |
|---|---|
| Join the **Game Group,** $25.00 per year and rent as many games as you like for only 20-25% of Mfrs. Sugg. Retail Price.* Minimum order, 3 game rentals | Join the **Business Group,** $50.00 per year and rent as many business application programs as you like for only 20-25% of Mfrs. Sugg. Retail Price.* |

**REMEMBER, THESE ARE NOT DEMOS, BUT ORIGINAL UNRESTRICTED SOFTWARE PROGRAMS**

(complete with manuals in original manufacturers' packages)

**To Immediately Order, or for more information:**

UNITED COMPUTER CORP.
Software Rental Library
Culver City, California

Toll Free CALL 1-800 992-7777
In California CALL 1-800 992-8888
In L.A. County CALL 1-213 823-4400

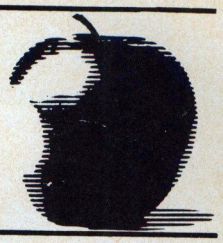
Canadian Orders Welcome

MasterCard AMERICAN EXPRESS VISA

*Plus postage and handling.

☐ EDUCATIONAL ☐ ACCOUNTS RECEIVABLE ☐ WORD PROCESSORS ☐ DATA BASES ☐ LANGUAGES ☐ GRAPHICS ☐

# BYTES FROM A.P.P.L.E.



Val J. Golding

WATCH OUT! Summer's here and we're taking it easy. We hope you're already cooling your Apple with our **Summer** Cooling Special, our fan kit at just $17.50. (Order HAKK.) If not, you've got till August 31st, so just see the order form at the back.

Also continuing on our extended special is our dual **All About** deals. There's a color advertisement in this issue with full details, so if you're looking for substantive, permanent reference material on the Apple, much of it never before published, go looking for the ad and be sure to use the product codes on the order form.

Howdja like to help us clear out our brand new warehouse, or at least neaten it up a bit? We've got several thousand miscellaneous back issues of *Call –A.P.P.L.E.* kicking around, so if you need to do some filling in to your collection, we'll make you four offers, but the bottom line is the more you buy, the less they cost!

*Note that we have most, but not all issues on hand, so in making out your order, be sure to include at least three alternates.* Now we're going to be pretty specific on the ordering information, because this is a costly special to process, and to offer you this kind of savings, we have to watch our own P's and Q's.

| | | |
|---|---|---|
| 1. | Group of 10: | $20.00 |
| 2. | Group of 15: | $24.00 |
| 3. | Group of 20: | $28.00 |
| 4. | Group of 25: | $32.00 |

Now here's what you can do to help us:

1) Order in the stated lots **only,** 10, 15, 20 or 25 magazines.
2) *No* phone orders on the magazine special, **mail only.**
3) Specify at least three alternates in case our supply is exhausted, or include the statement "Credit my account for items not shipped."
4) Back orders will not be shipped.
5) Please use our new product codes. For quantities 10, 15, 20 and 25 they are respectively, PSCA10, PSCA15, PSCA20 and PSCA25
6) Canadian and foreign members should estimate shipping costs at 6 oz. *per magazine.*

Last issue, we talked briefly about our new System 38, which we hope to bring on line shortly. It's sort of ironic — here we are, the largest Apple user group in the world, with over 18,000 members — and we have finally outstripped Apple's capacity. But then Apple Computer is not using Apples exclusively, either. The System 38 has been in the planning stage since before the first of the year, and its delivery and installation was timed roughly to coincide with occupancy of our new A.P.P.L.E. headquarters at Kent, WA.

What the 38 brings with it is not only new procedures (of which there are many), but also new efficiencies and cost savings to the membership. One of our stated goals for the end of 1983 is to bring order turnaround time down to ten days or less, and we believe we can do it. (Don't forget, a typical mail order house with our volume often takes four to six weeks.)

When we are up and running, our telephone order takers will be entering your orders directly into a terminal for the fastest possible processing. You can also help speed up this operation right now (and therefore your own order), by providing the data in the same sequence it will be entered in the terminal, as follows:

- Full name
- Member number
- Expiration date
- Product code
- Product name
- Product cost
- Product on special? (yes or no)
- Visa or Mastercard number
- Charge card expiration date

Your assistance and cooperation is, as always, appreciated.

```
]LIST

3  REM

   SO WHAT DID YOU EXPECT DEPT?

BY GARTH BAULCH : CALL -A.P.P.L.E


5  DIM C(15)
6  FOR A = 1 TO 15: READ C(A): NEXT

10  TEXT : HOME
20  HTAB 31: VTAB 5: FOR A = 1 TO
     9: PRINT  CHR$ (95);: NEXT :
     VTAB 6: HTAB 30: PRINT "/"
25  SPEED= 220
30  FOR A = 1 TO 15
40  VTAB 5: FOR H = 38 TO 30 - A STEP
     - 1: HTAB H: PRINT  CHR$ (C
    (A)) CHR$ (95);: NEXT
50  HTAB 30 - A: PRINT " "
60  HTAB 29 - A: VTAB 6: PRINT  CHR$
    (C(A))"/": FOR X = 7 TO 20: HTAB
    29 - A: VTAB X: PRINT  CHR$
    (C(A));: VTAB X - 1: PRINT  CHR$
    (8)" ": NEXT
70  NEXT
75  SPEED= 255
90  DATA 174,197,174,204,174,208,
    174,208,174,193,160,204,204,
    193,195
99  END
```

# Memorable.

## With 3M diskettes, your computer never forgets.

3M diskettes remember everything, every time. Because at 3M, reliability is built into every diskette. We've been in the computer media business for over 30 years. And we've never settled in. We're constantly improving and perfecting our product line, from computer tape and data cartridges to floppy disks.

3M diskettes are made at 3M. That way, we have complete control over the entire manufacturing process. And you can have complete confidence in the reliability of every 3M diskette you buy.

Look in the Yellow Pages under Computer Supplies and Parts for the 3M distributor nearest you. In Canada, write 3M Canada, Inc., London, Ontario. If it's worth remembering, it's worth 3M diskettes.

**3M hears you...**

**3M**

Circle 34 on Reader Service Card

A Call —A.P.P.L.E. TECHNIQUE:

# 80-Column //e Low-Res Graphics

Rob Moore

ALTHOUGH Apple Computer mentions the Apple *IIe*'s double-wide 560 x 192 graphics mode in the Extended 80-column Text Card Supplement manual, I couldn't find the corresponding double-wide Low-Res graphics mode mentioned anywhere. This mode provides 80 x 48 points in 16 colors (or 80 x 40 points with four lines of text below).

To take advantage of either of the double wide graphics modes, you need a REV-B motherboard in your Apple *IIe*. (Although the initial production was REV-A's, Apple Computer is now shipping exclusively REV-B units. I understand that there will be some sort of upgrade policy announced to help users that need the REV-B features). If you have the 80-column extended memory card strapped for double-wide High-Res graphics, the 80-column Low-Res mode is also available. For those who have the 80-column text card, you can carefully connect pins 50 and 55 on the card edge connector and you will be able to do double Low-Res but not double High-Res graphics (This may void your warranty).

The assembly language routines shown in listing 1 were a first cut at a set of drivers to deal with double-wide Low-Res graphics. They provide the standard Low-Res HLINE, VLINE, and PLOT functions as well as BOX, BLOCK, colored background FILL and a true LINE drawing routine. The normal COLOR= command works fine, but the SCRN function is not provided. (The classic phrase is "It is left as an exercise for the user".) The code may be assembled with A.P.P.L.E.'s Big Mac assembler or others, or may be entered in hex through the Apple *IIe* monitor (See listing 2). The BOX and LINE routines may be stripped out of the source code without affecting any of the other routines, if you want to reduce the overall size of the driver.

Listing 2 is an Applesoft Basic demo program that exercises all of the driver's functions and may be used as an example showing how to interface a BASIC program to the 80-Column Low-Res routines. It's also fun to watch.

```
:ASM

                 ********************************
                 *                              *
                 *     Apple //e 80 column      *
                 *   Low-res Graphics Driver    *
                 *                              *
                 *        by Rob Moore          *
                 *                              *
                 * Call -A.P.P.L.E. : July 1983 *
                 *                              *
                 ********************************

                 MASK      EQU   $2E
                 COLOR     EQU   $30
                 GBASL     EQU   $26
                 PAGE1     EQU   $C054
                 PAGE2     EQU   $C055
                 LORES     EQU   $C056
                 TXTCLR    EQU   $C050
                 MIXSET    EQU   $C053
                 STORE80   EQU   $C001
                 SETAN3    EQU   $C05E
                 GBASCALC  EQU   $F847
```

*Listing 1. An assembled listing of the Double-Wide Low-Res graphics driver routines. The ORG address and locations used for P0 to P7 are not critical, although the other equates should not be changed without care.*

```
                        24    *
                        25    P0        EQU   $42          ; Same as A4L
                        26    P1        EQU   P0+1
                        27    P2        EQU   P1+1
                        28    P3        EQU   P2+1
                        29    P4        EQU   P3+1
                        30    P5        EQU   P4+1
                        31    P6        EQU   P5+1
                        32    P7        EQU   P6+1
                        33    *
                        34    DX        EQU   P2
                        35    DY        EQU   P3
                        36    XDIR      EQU   P4
                        37    YDIR      EQU   P5
                        38    ERR       EQU   P6
                        39    COUNT     EQU   P7
                        40    *
                        41              ORG   $4000
                        42    *
4000: 4C A8 40          43              JMP   GR80
4003: 4C 21 40          44              JMP   PLOT
4006: 4C 8B 40          45              JMP   HLINE
4009: 4C A1 40          46              JMP   VLINE
400C: 4C B1 40          47              JMP   CLRSCR
400F: 4C AE 40          48              JMP   CLRTOP
4012: 4C B8 40          49              JMP   FULLBK
4015: 4C BC 40          50              JMP   TOPBK
4018: 4C CA 40          51              JMP   FILL
401B: 4C DC 40          52              JMP   LINE
401E: 4C 5E 40          53              JMP   BOX
                        54    *
                        55    * PLOT a point at P0(X),P1(Y)
                        56    *
4021: A5 43             57    PLOT      LDA   P1            ; Y-coord
4023: 4A                58              LSR
4024: 08                59              PHP
4025: 20 47 F8          60              JSR   GBASCALC      ; Compute line address
4028: 28                61              PLP
4029: A9 0F             62              LDA   #$0F
402B: 90 02             63              BCC   RTMASK
402D: 69 E0             64              ADC   #$E0
402F: 85 2E             65    RTMASK    STA   MASK
4031: A5 42             66    PLOT1     LDA   P0            ; X-coord
4033: 4A                67              LSR                 ;  divided by 2
4034: A8                68              TAY                 ; Mem bank to cy
4035: A5 30             69              LDA   COLOR
4037: B0 09             70              BCS   PLOTIT        ; If not X-mem
4039: 29 0F             71              AND   #$0F          ; Mask to MOD 16
403B: AA                72              TAX
403C: BD 4E 40          73              LDA   ALTCOLOR,X    ; Get alternate pattern
403F: AE 55 C0          74              LDX   PAGE2         ; and switch banks
4042: 51 26             75    PLOTIT    EOR   (GBASL),Y
4044: 25 2E             76              AND   MASK
4046: 51 26             77              EOR   (GBASL),Y
4048: 91 26             78              STA   (GBASL),Y     ; PLOT the point
404A: AD 54 C0          79              LDA   PAGE1         ; Set main page
404D: 60                80              RTS
                        81    *
                        82    * COLOR LOOKUP TABLE FOR AUX MEMORY PAGE
                        83    *
404E: 00 88 11
4051: 99                84    ALTCOLOR  DFB   $00,$88,$11,$99
4052: 22 AA 33
4055: BB                85              DFB   $22,$AA,$33,$BB
4056: 44 CC 55
4059: DD                86              DFB   $44,$CC,$55,$DD
405A: 66 EE 77
405D: FF                87              DFB   $66,$EE,$77,$FF
                        88    *
                        89    * Draw a BOX with upper left at P0(X1),P1(Y1) and
                        90    * lower right at P2(X2),P3(Y2)
                        91    *
405E: A5 42             92    BOX       LDA   P0
4060: 85 46             93              STA   P4            ; X1
4062: A5 43             94              LDA   P1
```

```
4064: 85 47       95              STA  P5          ; Y1
4066: A5 44       96              LDA  P2
4068: 85 48       97              STA  P6          ; X2
406A: 20 8B 40    98   BOX1       JSR  HLINE       ; X1,X2 AT Y1
406D: A5 45       99              LDA  P3
406F: 85 44      100              STA  P2          ; Y2
4071: A5 48      101              LDA  P6
4073: 85 42      102              STA  P0          ; X2
4075: 20 A1 40   103              JSR  VLINE       ; Y1,Y2 AT X2
4078: A5 46      104              LDA  P4
407A: 85 42      105              STA  P0          ; X1
407C: A5 47      106              LDA  P5
407E: 85 43      107              STA  P1          ; Y1
4080: 20 A1 40   108              JSR  VLINE       ; Y1,Y2 AT X1
4083: A5 48      109              LDA  P6
4085: 85 44      110              STA  P2          ; X2
4087: A5 45      111              LDA  P3
4089: 85 43      112              STA  P1          ; Y2
                 113   *
                 114   * BOX drops into HLINE P0,P1 at P2
                 115   *
408B: 20 21 40   116   HLINE      JSR  PLOT        ; The first point
408E: E6 42      117   HL1        INC  P0
4090: A5 44      118              LDA  P2
4092: C5 42      119              CMP  P0
4094: 90 11      120              BCC  RTS1
4096: 20 31 40   121              JSR  PLOT1
4099: 4C 8E 40   122              JMP  HL1
                 123   *
                 124   * VLINE entry does P0,P1 at P2
                 125   *
409C: 20 21 40   126   VL1        JSR  PLOT
409F: E6 43      127              INC  P1
40A1: A5 44      128   VLINE      LDA  P2
40A3: C5 43      129              CMP  P1
40A5: B0 F5      130              BCS  VL1
40A7: 60         131   RTS1       RTS
                 132   *
                 133   * Switch from std LO-RES to LO-RES 80
                 134   *
40A8: AD 5E C0   135   GR80       LDA  SETAN3
40AB: 8D 01 C0   136              STA  STORE80
                 137   *
                 138   * Entry points to clear the top 40 lines, to clear the
                 139   * whole screen, to fill the top background,
                 140   * and to fill the whole screen with a color.
                 141   *
40AE: 18         142   CLRTOP     CLC
40AF: 90 01      143              BCC  CLR1        ; ALWAYS
40B1: 38         144   CLRSCR     SEC
40B2: A9 00      145   CLR1       LDA  #0
40B4: 85 30      146              STA  COLOR
40B6: 90 04      147              BCC  TOPBK
40B8: A9 2F      148   FULLBK     LDA  #$2F
40BA: D0 02      149              BNE  BK1         ; ALWAYS
40BC: A9 27      150   TOPBK      LDA  #$27
40BE: 85 45      151   BK1        STA  P3
40C0: A9 4F      152              LDA  #$4F
40C2: 85 44      153              STA  P2
40C4: A9 00      154              LDA  #0
40C6: 85 42      155              STA  P0
40C8: 85 43      156              STA  P1
                 157   *
                 158   * FILL a block with upper left at P0,P1 and
                 159   * lower right at P2,P3
                 160   *
40CA: A5 42      161   FILL       LDA  P0
40CC: 48         162   FL1        PHA
40CD: 20 8B 40   163              JSR  HLINE
40D0: 68         164              PLA
40D1: 85 42      165              STA  P0
40D3: E6 43      166              INC  P1
40D5: A4 45      167              LDY  P3
40D7: C4 43      168              CPY  P1
40D9: B0 F1      169              BCS  FL1
40DB: 60         170              RTS
                 171   *
                 172   * Draw a LINE from P0,P1 to P2,P3.
                 173   * ( No restrictions on points. )
```

```
                        174  *
40DC: A0 01             175  LINE    LDY  #1          ; SET YDIR = +
40DE: 38                176          SEC
40DF: A5 45             177          LDA  P3
40E1: E5 43             178          SBC  P1          ; DELY=Y2-Y1
40E3: B0 06             179          BCS  LY1
40E5: 49 FF             180          EOR  #$FF
40E7: 69 01             181          ADC  #1
40E9: A0 FF             182          LDY  #$FF        ; YDIR = -
40EB: 84 47             183  LY1     STY  YDIR        ; YDIR=SGN(DELY)
40ED: 85 45             184          STA  DY          ; DY=ABS(DELY)
40EF: A0 01             185          LDY  #1          ; SET XDIR = +
40F1: 38                186          SEC
40F2: A5 44             187          LDA  P2
40F4: E5 42             188          SBC  P0          ; DELX=X2-X1
40F6: B0 06             189          BCS  LX1
40F8: 49 FF             190          EOR  #$FF
40FA: 69 01             191          ADC  #1
40FC: A0 FF             192          LDY  #$FF        ; XDIR = -
40FE: 84 46             193  LX1     STY  XDIR        ; XDIR=SGN(DELX)
4100: 85 44             194          STA  DX          ; DX=ABS(DELX)
4102: 18                195          CLC
4103: 65 45             196          ADC  DY
4105: 85 49             197          STA  COUNT       ; COUNT=DX+DY
4107: A5 44             198          LDA  DX
4109: 38                199          SEC
410A: E5 45             200          SBC  DY
410C: 4A                201          LSR
410D: C9 40             202          CMP  #$40
410F: 90 02             203          BCC  LIN1
4111: 09 80             204          ORA  #$80
4113: 85 48             205  LIN1    STA  ERR         ; ERR=(DX-DY)/2
4115: 20 21 40          206  LIN2    JSR  PLOT        ; PLOT a line point
4118: A5 48             207          LDA  ERR
411A: 30 0F             208          BMI  LIN3
411C: 38                209          SEC
411D: E5 45             210          SBC  DY
411F: 85 48             211          STA  ERR         ; ERR=ERR-DY
4121: A5 42             212          LDA  P0
4123: 18                213          CLC
4124: 65 46             214          ADC  XDIR
4126: 85 42             215          STA  P0          ; X=X+XDIR
4128: 4C 37 41          216          JMP  LIN4
412B: 18                217  LIN3    CLC
412C: 65 44             218          ADC  DX
412E: 85 48             219          STA  ERR         ; ERR=ERR+DX
4130: A5 43             220          LDA  P1
4132: 18                221          CLC
4133: 65 47             222          ADC  YDIR
4135: 85 43             223          STA  P1          ; Y=Y+YDIR
4137: C6 49             224  LIN4    DEC  COUNT
4139: 10 DA             225          BPL  LIN2
413B: 60                226          RTS


--End assembly--

316 bytes

Errors: 0
```

*Listing 2. A demo program written in Applesoft that demonstrates the new Double-Wide Low-Res graphics features.*

```
]LIST

0  REM   80-Column LO-RES Graphic
     s DEMO program.
1  REM   THIS PROGRAM REQUIRES AN
       APPLE //E WITH A
2  REM    REV-B mother, and one o
     f Apple's 80-column
3  REM    cards modified by conne
     cting pins 50
4  REM    and 55 together.
5  REM
10  GOSUB 1000
90 T$ = "RANDOM PLOTTED POINTS": GOSUB
     1100
100  FOR I = 0 TO 500
110  COLOR= 16 *  RND (1):X1 = 80
      *  RND (1):Y1 = 40 *  RND (
     1)
115  GOSUB 890: NEXT I
120  REM
125 T$ = "VLINES AND HLINES": GOSUB
     1100
130 Y1 = 0:Y2 = 39: FOR X1 = 0 TO
     79
140  COLOR= 16 *  RND (1): GOSUB
     910: NEXT X1
150  REM
160 X1 = 0:X2 = 79: FOR Y1 = 0 TO
     39
170  COLOR= 16 *  RND (1): GOSUB
     920: NEXT Y1
180  REM
185 T$ = "COLORED BACKGROUNDS": GOSUB
     1100
190  FOR I = 0 TO 15: COLOR= I: CALL
     TBK: NEXT I
200  REM  -- RANDOM BLOCKS/FILLS
     --
205 T$ = "RANDOM BLOCKS": GOSUB 1
     100
210  FOR I = 1 TO 150: COLOR= 16 *
      RND (1)
220 X1 = 80 *  RND (1):X2 = (80 -
     X1) *  RND (1) + X1
230 Y1 = 40 *  RND (1):Y2 = (40 -
     Y1) *  RND (1) + Y1
240  GOSUB 940: NEXT I
245 T$ = "RANDOM BOXES": GOSUB 11
     00
250  REM  -- RANDOM BOXES --
260  CALL TBK:: FOR I = 1 TO 150:
     COLOR= 16 *  RND (1)
270 X1 = 80 *  RND (1):X2 = (80 -
     X1) *  RND (1) + X1
280 Y1 = 40 *  RND (1):Y2 = (40 -
     Y1) *  RND (1) + Y1
290  GOSUB 950: NEXT I
300  REM  -- RANDOM LINES --
305 T$ = "RANDOM LINE DRAW": GOSUB
     1100
310  CALL CTP:: FOR I = 1 TO 200:
     COLOR= 16 *  RND (1)
320 X1 = 80 *  RND (1):X2 = 80 *
     RND (1)
330 Y1 = 40 *  RND (1):Y2 = 40 *
     RND (1)
340  GOSUB 980: NEXT I
350  REM  -- NESTED BLOCKS --
353 T$ = "NESTED BLOCKS": GOSUB 1
     100
355  FOR J = 1 TO 3
360  FOR I = 0 TO 39: COLOR= 16 *
      RND (1)
370 X1 = I:X2 = 79 - I:Y1 = I / 2
     :Y2 = 39 - I / 2
380  GOSUB 930: NEXT I,J
400  REM  LINE PATTERNS
405 T$ = "LINE PATTERNS": GOSUB 1
     100
420  FOR I = 1 TO 8: CALL TBK
430 Y1 = 0:Y2 = 39
440  FOR J = 0 TO 79 STEP 5
445  COLOR= 16 *  RND (1)
450 X1 = 0:X2 = J: GOSUB 980
460 X1 = 79:X2 = 79 - J: GOSUB 98
     0
480  NEXT J
485 Y1 = 0
490  FOR J = 0 TO 39 STEP 4
495  COLOR= 16 *  RND (1)
500 X1 = 0:X2 = 79:Y2 = 39 - J: GOSUB
     980
510 X1 = 79:X2 = 0: GOSUB 980
520  NEXT J,I
599  END
880  REM  PLOT A POINT ROUTINE
890  POKE P0,X1: POKE P1,Y1: CALL
     PLT: RETURN
900  REM  VLINE ROUTINE
910  POKE P0,X1: POKE P1,Y1: POKE
     P2,Y2: CALL VLN: RETURN
915  REM  HLINE ROUTINE
920  POKE P0,X1: POKE P1,Y1: POKE
     P2,X2: CALL HLN: RETURN
930  REM  FILL ROUTINE
940  POKE P0,X1: POKE P1,Y1: POKE
     P2,X2: POKE P3,Y2: CALL FILL
     : RETURN
950  REM  BOX ROUTINE
960  POKE P0,X1: POKE P1,Y1: POKE
     P2,X2: POKE P3,Y2: CALL BOX:
      RETURN
970  REM  LINE DRAW ROUTINE
980  POKE P0,X1: POKE P1,Y1: POKE
     P2,X2: POKE P3,Y2: CALL LINE
     : RETURN
1000 GINIT = 16384
1010 PLT = GINIT + 3:HLN = PLT +
     3:VLN = HLN + 3:CSC = VLN +
     3:CTP = CSC + 3:FBK = CTP +
     3:TBK = FBK + 3:FILL = TBK +
     3:LINE = FILL + 3:BOX = LINE
     + 3
1015 P0 = 66:P1 = 67:P2 = 68:P3 =
     69
1020  PRINT  CHR$ (4);"PR#3"
1030  GR : PRINT  CHR$ (18): REM
     CNTRL-R
1040  PRINT  CHR$ (4);"BLOAD GR80
     OBJ0"
1050  CALL GINIT: HOME : PRINT
1060  HTAB 22: PRINT "*** Double-
     Wide Lo-Res Graphics demo **
     *"
1070  DIM T$(40): RETURN
1100  REM  TITLE ROUTINE
1110  VTAB 24: HTAB (30): PRINT "
     *** ";T$;" ***";
1120  PRINT  CHR$ (29);: REM   CL
     REOL
1130  RETURN
```

New!

# DOUBLE-TAKE

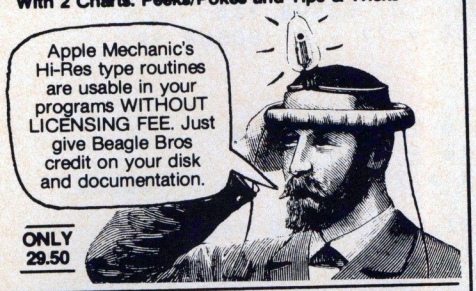
**ONLY 34.95**

**2-WAY-SCROLL / MULTIPLE UTILITY**
**BY MARK SIMONSEN**

LISTINGS & CATALOGS SCROLL Up AND Down, making file names and program lines much easier to access. Arrow-keys control scroll direction. **New Applesoft List Format** lists each program statement on new line for *FAST* program tracing and de-bugging.

**Variable-Display** shows all of a program's strings and variables with current values. **Cross-Reference** shows line nos. on which each variable & string appears. **Better Renumber/Append** lets you *merge* programs (not just connect end-to-end). Applesoft **Auto-Line-Number** as you type. Instant Hex/Dec Converter, Program Stats, Cursor Eliminate/Redefine, Free Space-On-Disk...

**With 2 Charts: Peeks/Pokes and Tips & Tricks**




**ONLY 29.50**

# APPLE MECHANIC

**SHAPE-WRITER / BYTE-ZAP UTILITY**
**BY BERT KERSEY**

SHAPE EDITOR: Keyboard-draw shapes for animation in your programs. Create **Proportionally-Spaced Typefaces** with special characters. Six fonts included. Listable Applesoft demos show you how to animate graphics and create professional Charts & Graphs.

BYTE-ZAP: Rewrite any byte on a disk for repair or alteration. **Load entire sectors on the screen** for inspection. Hex/Dec/Ascii displays and input. Educational instructions include experiments for making trick file names, restoring deleted files, changing DOS, etc.

MORE: Useful music, text and hi-res tricks for your programs. Clear educational documentation.

**(Includes Peeks & Pokes Chart and Tip Book #5)**

# APPLE MECHANIC TYPEFACES

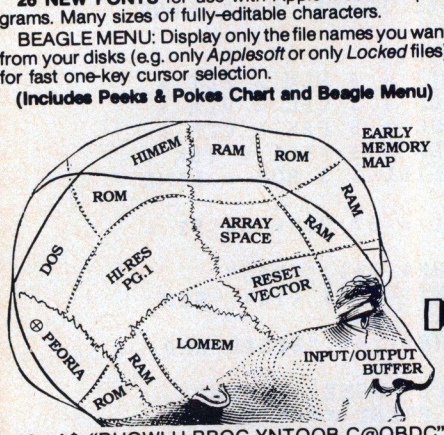
**ONLY 20.00**

**BY BERT KERSEY**

**26 NEW FONTS** for use with Apple Mechanic programs. Many sizes of fully-editable characters.

BEAGLE MENU: Display only the file names you want from your disks (e.g. only *Applesoft* or only *Locked* files) for fast one-key cursor selection.

**(Includes Peeks & Pokes Chart and Beagle Menu)**




```
10  A$="RUQWLU RBOC YNTOOB C@OBDC":
    SPEED=180: VTAB 10: PRINT A$
20  FOR X=0 TO LEN(A$)-1: S=SCRN(X,19):
    COLOR=S+(S=12)-(S=13)-(SCRN(X,18)>10):
    PLOT X,19: NEXT X: GOTO 10
```

# UTILITY CITY

**ONLY 29.50**

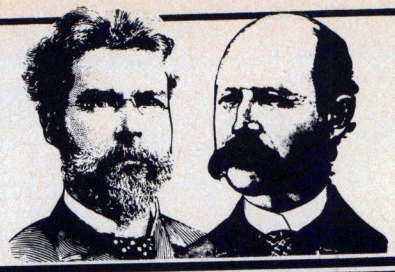
**21 UTILITIES ON ONE DISK**
**BY BERT KERSEY**

LIST FORMATTER prints each program statement on a new line. Loops indented with **printer page breaks.** A great Applesoft program de-bugger! Also...

**Multi-Column Catalogs** for printouts, auto-post Run-number & Date in programs, put invisible commands in programs, create **invisible file names,** alphabetize/store info on disk, convert dec to hex or Integer to FP, protect and append programs, dump text to printer...

MORE TOO: 21 Programs Total, a best-seller!

**(Includes Peeks & Pokes Chart and Tip Book #3)**



# Beagle Bros Micro Software Inc.

**4315 Sierra Vista | San Diego, California 92103**

# DOS BOSS

**ONLY 24.00**

**DISK COMMAND EDITOR**
**BY BERT KERSEY & JACK CASSIDY**

RENAME COMMANDS AND ERROR MESSAGES: "Catalog" can be "Cat"; "Syntax Error" can be "Oops" or anything you want. **Protect your programs.** An unauthorized save-attempt can produce a "Not Copyable" message, or *any* message you want. Also LIST-prevention and one-key program-execution from catalog.

**Customize DOS.** Change the Disk Volume heading to your message or title. Omit or alter catalog file codes. Fascinating documentation, tips and experiments. Hours of juicy Apple reading material.

**Anyone using your disks** (booted or not) will be formatting DOS the way you designed it.

**(Includes Peeks & Pokes Chart and Tip Book #2)**

**All Beagle Bros disks are Unlocked, Copyable, and Compatible with Apple* II, II+ and IIe. Don't settle for less.**

*"APPLE" is a registered trade mark of You-Know-Who.

New!

# FLEX TEXT

**ONLY 29.50**

**20/40/56/70-COLUMNS WITHOUT HARDWARE**
**BY MARK SIMONSEN**

PRINT VARIABLE-WIDTH TEXT on both hi-res screens with **normal Applesoft commands** (including Htab 1-70). Normal, expanded & compressed text with no hardware. 70-columns requires a monitor (not tv).

**Add graphics to text** or text to graphics. Run your existing Applesoft programs under Flex Text control. Easy to use and compatible with GPLE.®

**DOS Tool Kit®** font compatibility, or use the supplied Flex Text typefaces. Select up to 9 fonts with control-key commands. Print, List and Catalog in any type style! Custom text character editor included.

**(Includes Peeks & Pokes Chart)**

# BEAGLE BAG

**ONLY 29.50**

**12-GAMES-PLUS ON ONE DISK**
**BY BERT KERSEY**

COMPARE BEAGLE BAG with any one-game locked-up disk on the market today. All 12 games are a blast, the price is right, the instructions are crystal clear, AND **the disk is Copyable.** You can even *change* the programs or list them to learn by seeing how they work.

**Twelve Games** from the Applesoft Ace, Bert Kersey—TextTrain, Slippery Digits, Wowzo, Buzzword, Magic Pack... A great variety that taps your Apple's flexibility. **Excellent review in January 83 Softalk** (page 148).

BEAGLE MENU too: See "Typefaces" disk.

**(Includes Peeks & Pokes Chart and Beagle Menu)**

# FRAME-UP

**ONLY 29.50**

**HIGH-SPEED DISPLAY UTILITY**
**BY TOM WEISHAAR**

MAKE PROFESSIONAL PRESENTATIONS of existing hi-res, lo-res & text frames. *FAST* hi-res loads in 2½-seconds! Paddle or Keyboard-advance frames.

**Unattended Shows are optional** with each picture arranged and pre-programmed to display from 1 to 99 seconds. **Text Screen Editor** lets you create black-and-white text "slides" and add type "live" from the keyboard during shows. **Mail copies of presentations** on disk to friends and associates (and home to Mom!).

**(Includes Peeks & Pokes Chart)**

New!

# PRONTO-DOS

**ONLY 29.50**

**HIGH-SPEED DISK UTILITY**
**BY TOM WEISHAAR**

Put HIGH-SPEED DOS in your Apple's normal memory, Language Card or Apple IIe high-memory—

| Function | Normal | Pronto |
|---|---|---|
| BLOAD HI-RES IMAGE | 10 sec. | 3 sec. |
| LOAD 60-SECTOR PROGRAM | 16 sec. | 4 sec. |
| SAVE 60-SECTOR PROGRAM | 24 sec. | 9 sec. |
| BLOAD LANGUAGE CARD | 13 sec. | 4 sec. |

(TEXT FILES: No Change)

Boot the Pronto disk or your updated disks, created with the normal **INIT** command. Compatible with **all DOS commands,** G.P.L.E.® and most of your programs.

Pronto-DOS will move DOS to your Language Card or Apple IIe's standard high-memory, giving you **10,000 Extra-Bytes** of programmable memory!

ProntoDOS also frees-up **15-extra-sectors** per initialized disk, almost one full track of disk space!

PLUS: Auto Free-Disk-Space, New "TYPE" Command displays Text File contents, and much more...

**(Includes Peeks & Pokes Chart)**

# ALPHA PLOT

**ONLY 39.50**

**HI-RES GRAPHICS/TEXT UTILITY**
**BY BERT KERSEY & JACK CASSIDY**

DRAW IN HI-RES, on both pages, using keyboard OR paddles/joystick. View lines before plotting. Use mixed-colors and Reverse (background opposite) plotting. Fast hi-res circles, boxes and ellipses; filled or outlined.

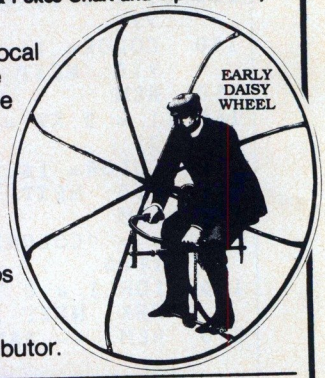
**Compress Hi-Res Images to 1/3 Disk-Space.** Superimpose hi-res pages 1 and 2 or re-locate any rectangular image area anywhere on either hi-res page.

**Proportionally-Spaced Hi-Res Type** with adjustable character size and color. Upper and lower case with no htab/vtab limits. Sideways typing for graphs too.

**(Includes Peeks & Pokes Chart and Tip Book #4)**

**GOTO** your local Apple Software Store for Beagle Bros products.

If they don't have what you want, tell them to get on the *stick* by calling Beagle Bros (619-296-6400) or ANY Apple Software Distributor.




# TIP DISK #1

**ONLY 20.00**

**100 TIP BOOK TIPS ON DISK**
**BY BERT KERSEY**

100 LISTABLE PROGRAMS from Beagle Bros Tip Books 1-4. Make your Apple do things it's never done! All 100 programs are changeable for experimentation. Includes our **Apple Command Chart** featuring all Applesoft, Integer Basic and DOS Commands!

**(Includes Peeks/Pokes and Command Charts)**

**RUSH the following disks by First Class Mail—**

| | | | |
|---|---|---|---|
| ☐ Alpha Plot | $39.50 | ☐ Pronto-DOS | $29.50 |
| ☐ Ap.Mechanic | 29.50 | ☐ Tip Disk #1 | 20.00 |
| ☐ Beagle Bag | 29.50 | ☐ Typefaces | 20.00 |
| ☐ DOS Boss | 24.00 | ☐ Utility City | 29.50 |
| ☐ Double-Take | 34.95 | | |
| ☐ Flex Text | 29.50 | ☐ Add me to mailing list. | |
| ☐ Frame-Up | 29.50 | ☐ Already on mailing list. | |

AT YOUR APPLE DEALER NOW!
Or order directly from Beagle Bros—

VISA master charge

Visa/MasterCard/COD, call TOLL-FREE
Nationwide: **1-800-854-2003** ext. 827
California: **1-800-522-1500** ext. 827
Alaska/Hawaii: **1-800-854-2622** ext. 827

OR mail U.S.Check, Money-Order or Visa/MC#
to BEAGLE BROS, 18th-Floor
4315 SIERRA VISTA, SAN DIEGO, CA 92103

Add $1.50 First Class Shipping, Any-Size Order.
Overseas add $4.00. COD add $3.00. California add 6%.
ALL ORDERS SHIPPED IMMEDIATELY.

AD #1

A SPECIFIC SOLUTION:

# "Betcha Dollars to Apples..."

Peter C. Lincoln, Ph.D.

I wanted to write about my solution to the dollar formatting problem before Lingwood (1982: 52) encouraged us to contribute to the literature. He made so many timely suggestions about how to improve the quality of articles in our field that I felt challenged to get my small program into print. But that was not the only article that inspired me. Zussman (1982:11) reporting on the "Success in Software" conference last summer. "Apple Computer vice-president John Couch...noted Isaac Newton's comment that he stood on the shoulders of giants, along with R.W. Hamming's observation that 'in the programming field, we mostly stand on each other's feet.'" Another speaker at the conference, Ed Lee of Pro-Log Corporation, said that software has developed very little in 25 years especially compared to advances in hardware. Lingwood also points out that many of the procedures needed in today's programs were published in the early 1960's as algorithms in Communications of the Association for Computing Machinery. They are saying much the same thing with different degrees of optimism. It's not as bad as it seems because a lot of the algorithms solve very old recurring problems. George Forsythe told classes at Stanford about using the same algorithms on large mechanical calculating machines that he was teaching us to use on a Burroughs 220.

I favor specific solutions for specific problems. I like to tailor a program to fit just the current needs. This practice leads to efficient code that is likely to run faster, to take up less memory and to be less buggy. I don't mean to contradict — rather to complement and to compliment — those who publish general solutions.

*...about the author*

*Peter C. Lincoln's scientific interest in language has alternated with similar interest in mathematics, particularly analytical geometry. He studied math and computer science at Stanford back when the IBM 7090 and the Burroughs 5000 were new. (Do you remember BALGOL?) Then he learned German properly — mit Bier. So where did the Navy send him next? The South China Seas. Very trendy that year. He was happier teaching math and science at Great Lakes. Then he went back to the Pacific — may it continue to live up to its name — settling in at the University of Hawaii where he became a certified expert on Melanesian Languages, a bona fide language doctor. He found SNOBOL and SPITBOL on the IBM 370 WOW! But he longed for liberation from JCL and TSO, and was ready for "one man, one computer." In 1978, Peter chose Ohio Scientific over the Apple that with strictly upper-case seemed not ready for word processing much less lexicography. The OSI he bought, turned out to be even less ready — would you believe that a bug in the ROM BASIC altered the program and the data during garbage collection. A linguist used to SPITBOL coined new names for some faceless people in Ohio.*

*There is a happy ending, Peter finally got an Apple II with 80 columns, language card etc. etc. One of the happiest moments since was spent chatting with Steve Wozniak when he came to talk to the Honolulu Apple fans in December 1981. Peter offered to provide him with a sample of his home brew — an ale that's a match for Newcastle Brown Ale or Anchor Steam Porter — he discovered why Woz and he differ so on the usage for "home brew," Wozniak doesn't drink. And that's not the only difference between them: there's quite a bit of grey in Peter's beard...*

Indeed a major concern of this presentation is to show that my specific solution came from revising more general solutions to the same problem. My program involves little that is new, but does show how I built on the work of others. And with luck will lead others to make further improvements. At least we can get off each other's feet.

## USR(X) PRINT DOLLAR FORMAT

The all too familiar problem is how to print fully punctuated dollar amounts generated within an Applesoft program. There are quite a wide range of solutions possible: The problem can be attacked within Applesoft or more efficiently with machine language — actually assembly language if humans write it. If machine language is chosen, we must give consideration to the questions: where to put it and how to invoke it. The favored location for short routines is in page 3 between $300 and $3D0 that is enough room for $CF or 207 bytes. Longer machine language programs are usually put up next to DOS with the HIMEM pointer adjusted so that the routine will not be destroyed when Applesoft runs. There are three ways to invoke machine language routines from Applesoft: CALL, USR( ), and &.

# "BETCHA DOLLARS TO APPLES..."

The need for dollar formatting arose in a program I was writing to produce Truth–In–Lending disclosure statements for mortgage banking. Those familiar with *Call –A.P.P.L.E.* software might well ask why not use "Print Using & Friends" (Peterson 1981). Well, as a matter of fact, I did just that. Anyone who has tried a painfully slow formatting routine in Applesoft that eventually fills string space and forces garbage collection, must be grateful to Peterson. However, as my program grew, my needs changed. Peterson's routines occupy more than 500 bytes at the high end of memory — much of that space for neat features that I was not using. The routines are invoked with the popular & command. In my specific case, this approach lead to serious difficulties. Because of the extensive passages of legalese required in the Applesoft program, those extra 500+ bytes of memory might be put to better use. Sure enough when I bought TASC, The Applesoft Compiler from Microsoft, to speed up some slow loops, which it did quite marvelously, memory was nearly filled by the compiled program. More urgently, TASC does not support the Applesoft & command. TASC usurps the & to point to the beginning of the compiled program so that & [RETURN] restarts the program. I chose to retain that handy use of & and use another access to the machine code. That left USR( ) or CALL.

With most machine language routines, information typically in the form of variables must be passed from the Applesoft program. With interpreted Applesoft one quite useful technique to pass variables to machine language subroutines is by simply referring to them in the same line as the call. For example: " 20 CALL 768,A " as explained by Wagner (1982:124). However, this technique is expressly countermanded in the TASC manual p.39 where it is explained that the technique relies on the interpreter pointing to the end of the CALL statement which coincides with the location of the variable reference. When the program is compiled, that information is lost. When the USR( ) function is used, the expression inside the parentheses is evaluated before control is passed to the machine language routine, the result being in the Floating Point Accumulator ($9D–$A3) (see Applesoft manual p. 140-141). This convenient technique made me choose USR( ). But I had another variable to pass, the width of the field to be printed. Since the value was an integer between 10 and 15, it was easy enough to pass this value by POKEing it into zero–page. The TASC manual (p.92) and the Apple ][ Reference Manual p.74–75 indicate that the last eight bytes of zero–page ($F9–$FF) are not used by any system software, therefore, I could safely use the highest two bytes:

$FE = 254 to pass the width of the format field "FW"
$FF = 255 to hold the number digits in the dollar amount.

Having decided on how to access the formatting routine and how to pass information, we still must consider where to put the routine. Putting it in the 207 bytes available on page 3 would free up 500+ bytes below DOS. So I looked at Peterson's program with an eye to pruning. Out went the nice, but unneeded options of & CLEAR TO EOL, & CLEAR TO EOP, & BELL, &RPT PRINT>, & SWAP>, and & DEL ARRAY>. I then looked at the remaining &PRINT USNG> code to see if further pruning could be acheived. I noticed that Peterson used the technique forbidden by TASC to pass formatting information to the routine. The format was in the string that immediately followed &PRINT USNG>. The compiler would not preserve that information. I did not despair. Indeed, the principle of specific solution, lead me to the realization that I could better use a fixed format.

All I wanted the routine to do was print amounts from 0 to millions with dollar sign, commas, and decimal. The only negative numbers were to have trailing minus signs which the main Applesoft program already did nicely. In other words, I could define the limits of the output with just the width of the field; no need to find a formatting string passed from BASIC.

```
:ASM

1
        ********************************
3       *                              *
4       * USR(X) PRINT DOLLAR FORMAT   *
5       *                              *
6       *      Peter C. Lincoln        *
7       *                              *
8       * Call -A.P.P.L.E. : July 1983 *
9       *                              *
10      *                              *
        ********************************
12      *
13      *  USR() FUNCTION CALLED FROM APPLESOFT
14      *   Must POKE 10,76 : POKE 11,0 :POKE 12,3
15      *     Prior to call from APPLESOFT
16      *
17      *  APPLESOFT program must POKE width of field into $FE = 254
18      *
19      *  CAUTION! the BASIC statement X=USR(PB) will print
20      *  the value of PB formatted as dollars and cents
21      *   BUT the value of X will be meaningless.
22      *  ALSO if field width (in $FE) is too small,
23      *  up to 255 blanks may be printed.
24      *
25      * Zero-page  variables
26      *
```

Even so Peterson's article still had some very useful information. In the scholarly fashion urged by Lingwood, Peterson referred to earlier work on "Print Using." In particular, Morris (1980) uses the USR( ) function to format printing, but he too used a string variable passed from BASIC to define the format. His clever routine looks for the string variable ED$, which must contain the format. But I had already decided to use a fixed format and didn't need this technique.

USR( ) is a function and thereby has some quirks or what might be called "under documented syntax." Unlike CALL and &, which are commands as detailed by Mesztenyi (1982) and can be invoked with little fuss, USR( ) is a function and cannot occur as the first element in a statement. In other words, executing the line " 10 USR(PB) " results in an Applesoft error message. To overcome this I used the syntax " 10 X = USR(PB) ."

Morris used the USR( ) function in a PRINT statement. Consequently, his routine controlled the printing of each character until the last which was sent back to BASIC thru the integer to floating point conversion routine. I prefer the more direct approach of having the USR( ) do all the printing character by character; removing the need for the PRINT statement in the BASIC program.

```
                FW        EQU   $FE          ;Field width
                LENX      EQU   $FF          ;Number width
                *
                *
                NMBR      EQU   $0100        ;BUFFER squeezed under stack
                *                            ;by higher authority
                * APPLESOFT routines
                *
                OUTSP     EQU   $DB57        ;Print space
                PRNTA     EQU   $DB5C        ;Print accumulator
                FADDH     EQU   $E7A0        ;Add 1/2
                MULT10    EQU   $EA39        ;Times 10
                RNDB      EQU   $EB72        ;Round bit
                ABS       EQU   $EBAF        ;Absolute value in FAC
                INT       EQU   $EC23        ;Integer value in FAC
                FOUT      EQU   $ED34        ;FP to STR$
                *
                          ORG   $300
                *
                *                USR(X) X Dollars to nearest penny
                *
0300: 20 39 EA            JSR   MULT10       ;DIMES    = X * 10
0303: 20 39 EA            JSR   MULT10       ;PENNIES = DIMES * 10
0306: 20 72 EB            JSR   RNDB         ;Smooth binary rounding
0309: 20 AF EB            JSR   ABS          ;Strip sign, insure positive input
030C: 20 A0 E7            JSR   FADDH        ;Add 1/2
030F: 20 23 EC            JSR   INT          ;then truncate
0312: 20 34 ED            JSR   FOUT         ;Make STR$
                *
                *        Measure number of digits in X
                *
0315: A2 FF               LDX   #$FF         ;start at -1 soon to be 0
0317: E8        DIGX      INX
0318: BD 01 01            LDA   NMBR+1,X
031B: D0 FA               BNE   DIGX         ;Null marks end
031D: 86 FF               STX   LENX         ;Save length
                *
                *        Count characters needed, subtracting from width of field
                *
031F: A4 FE               LDY   FW           ;Field width set by calling program
                *
                *        Punctuation first
                *
0321: E0 08               CPX   #8           ;Into millions ?
0323: 90 01               BLT   C1
0325: 88                  DEY                ;Millions comma

0326: E0 05     C1        CPX   #5           ;Into thousands ?
0328: 90 01               BLT   C2
032A: 88                  DEY                ;Thousands comma

032B: 8A        C2        TXA                ;Special case if one digit
032C: D0 01               BNE   C3
032E: 88                  DEY                ;Leading zero after decimal

032F: 88        C3        DEY                ;Decimal
0330: 88                  DEY                ;Dollar sign
                *
                *        Now digits
                *
0331: 98                  TYA                ;Set up Y
0332: 38                  SEC
```

# "BETCHA DOLLARS TO APPLES..."

### The Nitty Gritty

1) Before calling this routine POKE 10,76:POKE 11,0:POKE 12,3 to establish the USR( ) jump to $300.
2) Also POKE 254,10 to give width of field in which the dollar amount will be right justified. If the value is too small, extra blanks, several lines worth, may be printed.
3) Then X = USR(Y) will print Y in the format $123,456.89 rounded to the nearest penny. No carriage return or line feed is printed. The USR(Y) functions somewhat like PRINT Y; The value of X is jumbled and meaningless, because the FOUT subroutine scrambles the Floating Point Accumulator (Crossley 1981:53).

When control is passed to the routine at $0300, the amount to be formatted is in the Floating Point Accumulator, the width of field is in $FE. Immediately the dollar amount is rounded to the nearest penny using internal Applesoft routines. Then it is converted to a sequence of ASCII values in the buffer at the bottom of the stack area at $100 to $110 (see Crossley 1981:53). Using that supposedly reserved space for a buffer was not my idea, presumably the allocation was made by Microsoft. From this point on the code is more original. The string of digits is scanned as part of the calculation to determine how many blanks should be printed before the "$." If more than eight digits allow for million's comma, if more than five digits allow for thousand's comma, allow for "$" and "." and if just one digit allow a leading zero after the decimal. The calculated number of required leading blanks is in the Y-register, the loop at label SPACY prints out that many blanks. Notice that there is no error checking done on this calculation; so if the field width (POKE 254,width) is not enough to accommodate the dollar amount, the calculation may be off by more than 200. Fortunately that many blanks are quite conspicuous and the problem is not difficult to find. Now all that remains is to print out the digits with the appropriate punctuation and return to the Applesoft program.

And there you have it, a quick way to format dollar output with a compiled Applesoft program. This is but one specific solution; many others are possible. For example, my friend Richard Foulk of Pegasus Software suggested that instead of printing all the characters the routine could build a string that was then passed back and thereby giving more printing control to the BASIC program. I like the idea, but I also follow the folk wisdom "If 'n it ain't broke, don't fix it."

### References


Anonymous, *Applesoft II BASIC Programming Reference Manual,* Apple Computer Inc. 1978.

Anonymous, *MICROSOFT™ TASC™ User's Manual* Microsoft Consumer Products 1981.

Crossley, John, Applesoft Internals, in Golding (1981) pp.51–57.

Espinosa, Christopher, *Apple II Reference Manual,* Apple Computer Inc. 1978.

Golding, Val J. Editor *Call -A.P.P.L.E. In Depth* number one All About Applesoft 1981.

Lingwood, Dr. David, Programming and problem solving. *Call -A.P.P.L.E.,* December 1982 pp. 49–52.

Mesztenyi, C.K., Applesoft Internal Structure. *Call -A.P.P.L.E.,* December 1982 pp.9–13.

Morris, Gary A., PRINT USING for Applesoft, *MICRO — The 6502 Journal,* 29:14–17 October 1980.

Peterson, Craig, Print using and friends. in Golding 1981, pp.85–91.

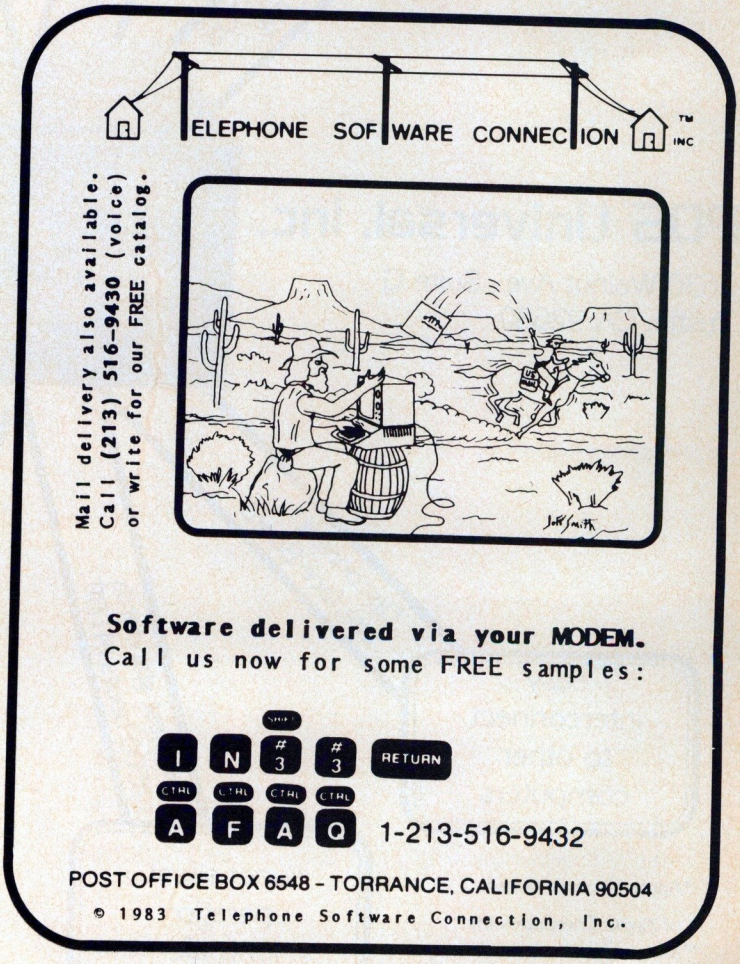
Wagner, Roger, Assembly Lines: Everyone Guide to Assembly Language, Part 17. *SOFTALK* February 1982 p.120–129; and in more recent issues e.g. December 1982.

Zussman, John Unger, Coming of age in softwareland: culture begins. *InfoWorld, August 16,1982 pp. 10,11,14.*


```
0333: E5 FF       89
0335: A8          90
                  91    *
                  92    *       SBC  LENX        ;Less X digits
                  93    *       TAY
0336: 20 57 DB    94    SPACY   JSR  OUTSP       ;Send spaces
0339: 88          95            DEY
033A: D0 FA       96            BNE  SPACY
                  97    *
                  98    *       Print the dollars and cents
                  99    *
033C: A9 A4       100           LDA  #"$"
033E: 20 5C DB    101           JSR  PRNTA       ;Dollar sign first
0341: A2 00       102           LDX  #0          ;Point to $100 buffer
0343: A5 FF       103           LDA  LENX        ;Check for just pennies
0345: C9 02       104           CMP  #2
0347: 90 28       105           BLT  PENN
0349: BD 00 01    106   X1      LDA  NMBR,X      ;A digit
034C: 20 5C DB    107           JSR  PRNTA       ;to print
034F: A5 FF       108           LDA  LENX        ;Position
0351: C9 08       109           CMP  #8          ;Check millions
0353: F0 0E       110           BEQ  COMMA
0355: C9 05       111           CMP  #5          ;Check thousands
0357: F0 0A       112           BEQ  COMMA
0359: C9 02       113           CMP  #2          ;Check decimal
035B: F0 0D       114           BEQ  DECI
035D: E8          115   X2      INX              ;Next digit
035E: C6 FF       116           DEC  LENX        ;Still there
0360: 10 E7       117           BPL  X1          ;Yes repeat
0362: 60          118           RTS              ;No, exit
```

```
                    119  *
                    120  *        Print a comma
                    121  *
0363: A9 AC         122  COMMA     LDA  #","
0365: 20 5C DB      123            JSR  PRNTA
0368: D0 F3         124            BNE  X2          ;Always branches (CHR still in ACC)
                    125  *
                    126  *        Print a decimal
                    127  *
036A: A9 AE         128  DECI      LDA  #"."
036C: 20 5C DB      129            JSR  PRNTA
036F: D0 EC         130            BNE  X2          ;Always branches
                    131  *
                    132  *        Print decimal and leading zero if needed when X < $.10
                    133  *
0371: A9 AE         134  PENN      LDA  #"."        ;Decimal before digit
0373: 20 5C DB      135            JSR  PRNTA
0376: A5 FF         136            LDA  LENX        ;Leading zero ?
0378: D0 CF         137            BNE  X1          ;If no next digit
037A: A9 B0         138            LDA  #"0"        ;If yes print it
037C: 20 5C DB      139            JSR  PRNTA
037F: D0 C8         140            BNE  X1          ;Always branches

--End assembly--

129 bytes

Errors: 0
```

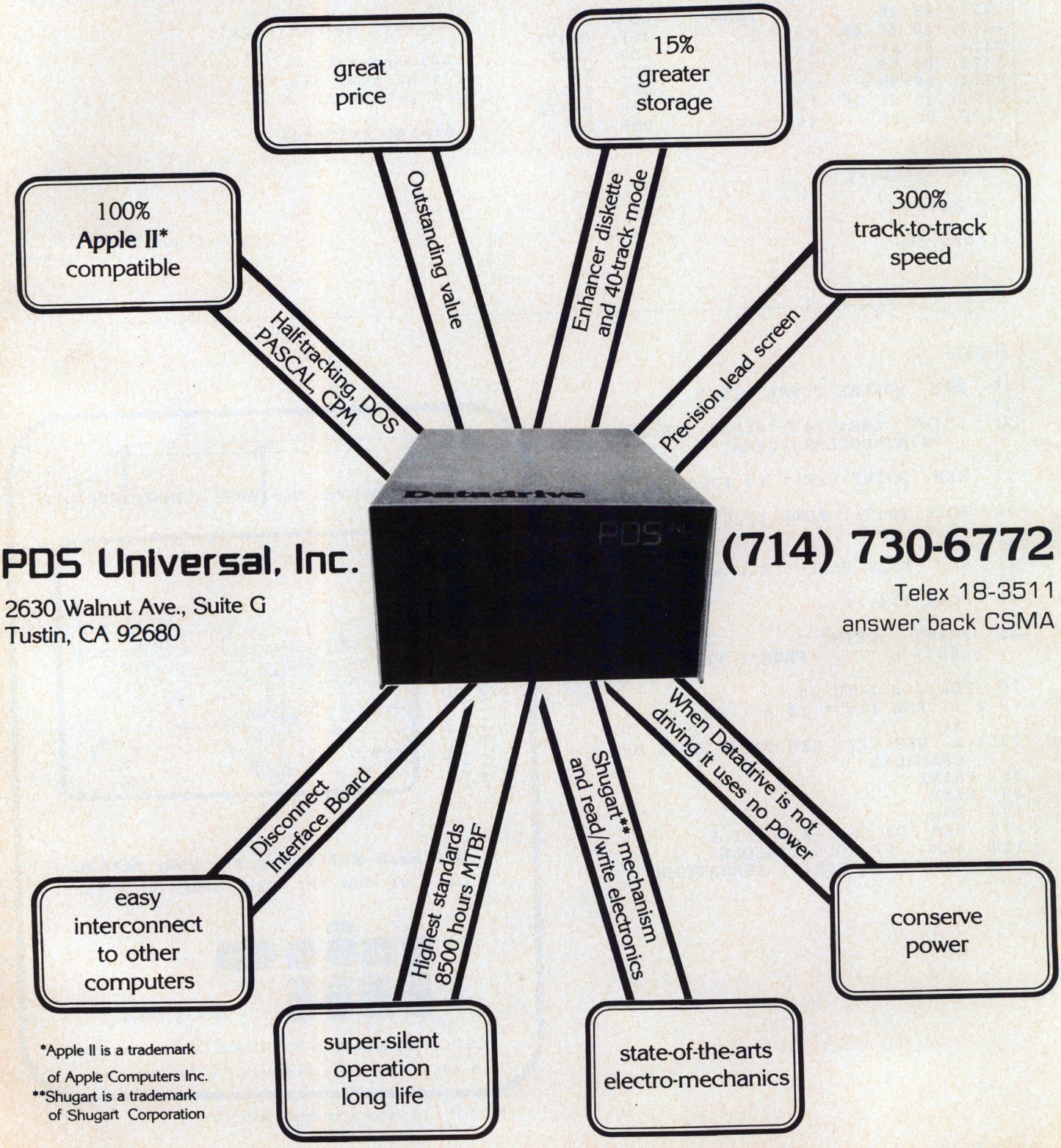
```
]LIST

10  REM  DOLLAR FORMAT TEST
11  :
20  PRINT  CHR$ (4);"BLOAD USR(X)
      PRINT DOLLAR FORMAT"
21  :
22  REM  POINT USR() TO $300
23  :
30  POKE 10,76: POKE 11,0: POKE 1
    2,3
31  :
32  REM  MUST POKE FIELD WIDTH
33  :
40  POKE 254,16
41  :
45  PRINT : PRINT "        FORMATT
    ED              FROM": PRINT : PRINT

50  FOR J = 1 TO 10
60  X =  RND (1) * 10 ^ ( RND (1) *
    7)
70  Y =  USR (X): REM VALUE OF Y S
    CRAMBLED
80  PRINT "        ";X
90  NEXT
100  END
110  REM FOR CALL-A.P.P.L.E.
120  REM   BY P.C. LINCOLN
130  REM TESTS USR(X) FORMATTING
```


Circle 47 on Reader Service Card

All Logical Paths Lead to

# PDS DATADRIVE™ FOR YOUR APPLE II*




**PDS Universal, Inc.**

2630 Walnut Ave., Suite G
Tustin, CA 92680

**(714) 730-6772**

Telex 18-3511
answer back CSMA

*Apple II is a trademark of Apple Computers Inc.
**Shugart is a trademark of Shugart Corporation

Circle 8 on Reader Service Card

PASCAL PROGRAM FILE HANDLING:

# The Inside Story

Chris W. Green

I have always believed that a computer user should not have to do any task which the computer can do more easily or more accurately. This maxim truly applies in connection with file handling functions. We have all experienced those programs which, in providing access to a choice of data files from a disk, require the user to type in the full file name. At best, these programs provide a catalog for the user to choose from, while at worst, some, like LOADHRCG in the Applesoft Toolkit, not only deny this convenience but also "bomb" if a mistake is made in entering the name. To me, this indicates a lack of attention, which is rarely justified, to the convenience of the user.

As I say, in such cases, the program should at minimum provide a catalog display. Preferably it would present a menu of suitable file names on the disk for selection by index number or other simple device. Visicalc provides a well-known example of one approach to this which is quite satisfactory although rather slow. There have been a number of BASIC and machine language routines published which will do a similar job in a DOS environment.

In Pascal, this type of programming is just as important, but is complicated by the fact that the routines provided by the system to do these jobs are located in the Filer, which cannot normally be accessed while another program is running. Nevertheless, if the necessary access can be made, the task is somewhat simplified by the shorter file names allowed in Pascal and by the fact that the system records the length of each name so that we are not left with the problem of checking all the trailing blanks — as is the case with DOS.

A general purpose routine which will carry out almost all of the functions required is shown in Listing 1. This works in much the same way as the Filer, except that the "*" and ":" specification of boot and prefix volumes are not accepted and the wild card options are not implemented. The routine can be used either to produce a simple directory listing or to present a list of those disk files which have a given suffix for selection by means of an index number. In this latter case, the user needs to provide only the volume number of the drive concerned or the volume name of the disk concerned when prompted for a file identification. Alternatively the user can provide both volume and file identification and the program will attempt to match this with the files in the directory.

Depending on the parameters declared on entering, this routine can be used either for file recall, for file save, for providing a directory listing, or for the user to perform the choice. Note that the routine does not actually read or write any files. It only provides an acceptable file name for other routines which will do the reading or writing. As such, the routine does not make any changes to the disk.

In the case of "R(ecall file," the routine will attempt to provide a name which is in the disk directory; on the other hand, in the case of "S(ave file," the routine will check that the name does not occur in the directory. If it does, then the user is asked for confirmation that the file may be removed.

The "L(ist directory" option does just what it says, while the "F(iler" option allows the user to select Recall, Save or List as required from inside the routine. This option may be less useful than the other options but does add to the generality of the routine.

Access to the routine is through a function declared as:

```
Function FileIdent(Operation:
DiskOp;Suffix:String; Var
Album:String):Boolean
```

where Type DiskOp consists of "(Recall, Save, Filer, DirList)," the options referred to above. Suffix is a string of maximum length 16 characters and is intended to specify the file name suffix (".TEXT," ".CODE" or suchlike). The programmer may specify a unique suffix to be used for data files produced and read by his program. This allows user access to be restricted to suitable files. Alternatively, if the suffix is made a null string, the routine will provide access to all files on the disk. If the user types in a filename, the routine checks to see if the suffix is there. If it is not, and the entered name is not terminated by a period, the routine will automatically add the specified suffix.

On exit, if a satisfactory selection has been made, the variable "Album" . . .<Filedent> and the function will return true. But if no satisfactory selection has been made (that is, the required volume or file does not exist in the case of a Recall or the file does exist and is not to be removed in case of a Save), the variable "Album" holds the string "No file selected" and the function returns false. This is also the case on exit from a List.

—◉→

# THE INSIDE STORY

The routine is provided in the form of an Intrinsic Unit, to be bound into the System.Library. For this purpose, an Intrinsic Code of 25 has been selected since this does not clash with any of the units provided with the system; any other suitable code number could be used. Used in this way, the routine may be called by any program.

Alternatively, the unit may be compiled as a regular unit, by omitting "Intrinsic Code 25;." In this case, the compiled unit must be available to the host program at compile time and must also be linked to the host after the compilation.

As a third alternative, the routine could be incorporated into the host program either in the editor or as an Include file during compilation. In this case, all lines followed by the symbols '{*}' in the listing should be deleted before compiling. The declaration "Type DiskOp" will also need to be moved to the beginning of the main program.

Listing 2 provides a short test and demonstration program for the routine. Again, it does nothing to the disk, so there need be no fear of messing up existing files. It is self–explanatory and should give the idea of how the unit can be called from a program. Note that the listing assumes that the unit has been compiled as an intrinsic unit and bound into the System.Library. If it has been compiled as a regular unit, the "Uses" declaration will need modification to refer to the file which holds the compiled unit and the unit must be linked in before running the demonstration.

```
]FILEDUMPDIRECTSTUF.TEXT
{$C 29/08/82 Copyright Chris W. Green }
{$S+}  {*}
Unit Directstuff:  Intrinsic Code 25;  {*}
(* Symbol {*} indicates line to be deleted if routine to stand alone. *)

Interface  {*}

  Type
    DiskOp = (Recall, Save, Filer, DirList);
    { If routine is to stand alone, this declaration should be }
    { global to the program.                                   }

  Function FileIdent(Operation : DiskOp;
                     Suffix : String;
                     Var Album : String) : Boolean;

Implementation  {*}

  Function FileIdent;  {*}

{\/\/\/\/\/\/\/\/\/\/\/\/\/\/\/\/\/\/\/\/\/\/\/\/\/\/\/\/\/\/\/\/\/\/\/}
{                                                                    }
{ Unit to read directory of disk, check volume name and file names.  }
{                                                                    }
{ Copyright 1982 Chris W. Green                                      }
{                                                                    }
{ Enter with parameters as indicated. Suffix (eg '.TEXT') must be < 16 }
{ chars and may be null string (''), in which case all file names in }
{ in directory will match.  On exit, function returns true if        }
{ acceptable vol/file found, and variable Album provides             }
{ <VolIdent>':'<FileIdent>.  If good file not found then function will }
{ be false, and Album holds the string 'No file selected'.  Function }
{ returns false after directory read (Op = DirList).                 }
{                                                                    }
{/\/\/\/\/\/\/\/\/\/\/\/\/\/\/\/\/\/\/\/\/\/\/\/\/\/\/\/\/\/\/\/\/\/\/\}

  Type
    String15 = String[15];

  Var
    Good : Boolean;
    FileReq, DiskName : String15;

    Procedure GetIdent;
    { Directs user to option requested on entry by parameter Operation. }

    Const
      FirstDirBlock = 2; { 1st directory block }
      FirstFileBlock = 6; { 1st file block }
      MaxFiles = 77; { Max number of files in directory }

    Type
      DiskVol = 4..12;
      DVolSet = Set Of DiskVol;
```

```
Var
  Op : DiskOp;
  Buffer : Packed Array[0..511] Of 0..255;
  OnLine : DVolSet; { Set of Disk Vols actually on line }
  VolString : String15;  { Part of requested file which identifies vol }
  FileName : Packed Array[1..MaxFiles] Of String15;  { Files in dir }
  GoodFiles : 0..MaxFiles;  { No. of files in dir with matching suffix }
  Vol : Integer;  { Requested vol no. }
  NoFile : Boolean;  { True if no file name specified }

  Function Val(Data : String15) : Integer;
  { Simple function to return integer value of string. }

  Var
    Tens, I, Number : Integer;

  Begin
    Tens := 1;
    Number := 0;
    For I := Length(Data) Downto 1 Do
      If Data[I] In ['0'..'9']
        Then Begin
               Number := Number + (Ord(Data[I]) - Ord('0')) * Tens;
               Tens := Tens * 10;
             End;  { If Data }
    Val := Number;
  End;  { Val }

  Procedure VolName(VolNo : Integer; Var DName : String15);
  { Reads name of specified volume from block 2 to buffer. }
  { If read successful saves name else generates error.    }

  Begin
    Buffer[6] := 0;
    UnitRead(VolNo, Buffer, Sizeof(Buffer), 2);
    If (Buffer[6] > 0) And (Buffer[6] < 8)
      Then Moveleft(Buffer[6], DName, 8)
      Else Exit(GetIdent);
  End;  { VolName }


  Function GoodVol(Task : String) : Boolean;
  { Checks Volume Identification entered by user, and if OK,      }
  { checks that the required volume is on line.  True if all OK. }

  Var
    Identifier : String[40];
    Found : Boolean;
    I, Len : 0..40;

    Procedure GetVolString;
    { Separates Volume Number from File Name. }

    Var
      Colon : 0..40;

    Begin
      Colon := Pos(':', Identifier);
      If Colon > 0
        Then Begin
               VolString := Copy(Identifier, 1, Colon - 1);
               Delete(Identifier, 1, Colon);
               FileReq := Identifier;
             End { If Colon..Then }
        Else Begin
               VolString := Identifier;
               FileReq := '';
             End;  { If Colon..Else }
      NoFile := (Length(FileReq) = 0);
    End;  { GetVolString }

    Function VolsThere : Boolean;
    { Checks that volume specified by number is on line. }

    Begin
      GetVolString;
      Vol := Val(VolString);
      VolsThere := Vol In OnLine;
    End;  { VolsThere }
```

```
Function VNamesThere : Boolean;
{ Checks that disk specified by name is on line; }
{ if not, asks for it.                           }

Var
  D : 4..13;
  OK : Boolean;
  Ch : Char;

  Procedure PutIn;
  { Requests user to put required disk in drive. }

  Begin
    Page(Output);
    Repeat
      Writeln('Put in ', VolString);
      Write('Type (space) to continue');
      Read(Ch);
      Writeln;
    Until (Ch = ' ') Or (Ch = Chr(27));
  End;  { PutIn }

Begin  { VNamesThere }
  OK := False;
  GetVolString;
  If (Length(VolString) < 8) And (Length(VolString) > 0)
    Then Begin
           Repeat
             D := 4;
             Repeat
               If D In OnLine
                 Then Begin
                        VolName(D, DiskName);
                        OK := (DiskName = VolString);
                      End;  { If D In..Then }
               D := D + 1;
             Until (D = 13) Or OK;
             If Not OK Then PutIn;
           Until OK Or (Ch = Chr(27)) Or Eoln;
           Vol := D - 1;
           Gotoxy(0,1);
         End;  { If (Length..Then }
  VNamesThere := OK;
End;  { VNamesThere }

Begin  { GoodVol }
  Write(Task);
  Readln(Identifier);
  Len := Length(Identifier);
  For I := 1 To Len Do
    If Identifier[I] In ['a'..'z']
      Then Identifier[I] := Chr(Ord(Identifier[I]) - 32);
  Found := (Len < 24);
  If Found
    Then Begin
           VolString := '';
           Found := (Len > 0);
           If Found
             Then If (Identifier[1] = '#') And (Len > 1)
                    Then Found := VolsThere
                    Else Found := VNamesThere;
           VolString := Concat(VolString, ':');
           If Not Found Then Writeln(Chr(7), Chr(11), VolString,
                                     ' - No such vol on-line');
         End  { Then }
    Else Writeln(Chr(7), Chr(11), Identifier, ' - File name too long');
  GoodVol := Found;
End;  { GoodVol }

Procedure ReadDirectory;
{ Reads all file names from directory and retains those which match. }

Var
  TotalFiles : Integer;  { No. of current files in dir. }
  Block : FirstDirBlock..FirstFileBlock;
```

```
    Procedure GetFiles;
    { Does the actual reading and checking. }

    Const
      DirEntryLength = 26; { Length of each file entry in directory }
      FirstEntry = 32; { Offset of 1st file entry in directory }

    Var
      LenName : 0..15;
      J, K : Integer;
      Index : 1..MaxFiles;
      GotNextBlock : Boolean;

      Procedure GetNextBlock;
      { Reads next directory block into buffer. }

      Begin
        Block := Block + 1;
        If Block = FirstFileBlock Then Exit(GetFiles);
        UnitRead(Vol, Buffer, Sizeof(Buffer), Block);
        K := 0;
        GotNextBlock := True;
      End;  { GetNextBlock }

      Procedure Names;
      { Gets each file name and checks if suffix matches.  If so, }
      { moves name into array FileName for retention.             }

      Var
        I : 0..15;
        FName, FSuffix : String15;

      Begin
      {$R-}
        FName[0] := Chr(LenName);
      {$R+}
        K := J;
        For I := 1 To LenName Do
          Begin
            K := K + 1;
            If K = 512 Then GetNextBlock;
            FName[I] := Chr(Buffer[K]);
          End;  { For I }
        FSuffix := FName;
        Delete(FSuffix, 1, LenName - Length(Suffix));
        If FSuffix = Suffix
          Then Begin
                 GoodFiles := GoodFiles + 1;
                 FileName[GoodFiles] := FName;
               End;  { If FSuffix..Then }
      End;  { Names }

    Begin  { GetFiles }
      J := FirstEntry;
      GoodFiles := 0;
      For Index := 1 To TotalFiles Do
        Begin
          GotNextBlock := False;
          LenName := Buffer[J];
          If LenName > 0 Then Names;
          If (J + DirEntryLength > 511) And Not GotNextBlock
            Then GetNextBlock;
          J := (J + DirEntryLength) Mod 512;
        End;  { For Index }
    End;  { GetFiles }

  Begin  { ReadDirectory }
    Block := FirstDirBlock;
    VolName(Vol, DiskName);
    TotalFiles := Buffer[16] + Buffer[17] * 256;
    If TotalFiles > MaxFiles Then Exit(GetIdent);
    GetFiles;
  End;  { ReadDirectory }

  Procedure ShowDirectory(Var GotFile : Boolean);
  { Reads directory and displays filenames with required suffix }
  { with index number ready for selection.                      }
```

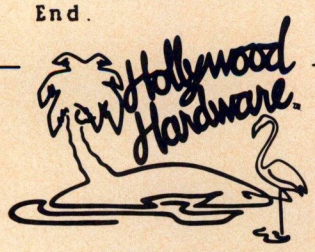
```
Var
  I : 1..MaxFiles;

  Procedure Request;
  { Requests selection by input of index number of file required. }

  Const
    MaxLen = 2;

  Type
    ShortString = String[MaxLen];

  Var
    FileNo : 0..MaxFiles;

    Procedure ReadRequest(Var InString : ShortString);
    { Based on Procedure GetString in Program DISKIO on APPLE3:. }

    Type
      SetOfChar = Set Of Char;

    Var
      S1 : String[1];
      OKSet : SetOfChar;

      Function GetChar(OKSet : SetOfChar) : Char;

      Var
        Ch : Char;

      Begin
        Repeat
          Read(Keyboard, Ch);
          If Eoln(Keyboard) Then Ch := Chr(13);
          If Not (Ch In OKSet)
            Then Write(Chr(7))
            Else If Ch In ['0'..'9', Chr(8)] Then Write(Ch);
        Until Ch In OKSet;
        If Ch = Chr(27)
          Then Begin
                 WriteIn;
                 Exit(ShowDirectory);
               End;  { If Ch..Then }
        GetChar := Ch;
      End;  { GetChar }

    Begin  { ReadRequest }
      OKSet := ['0'..'9'];
      S1 := ' ';
      InString := '';
      Repeat
        If Length(InString) = 0
          Then S1[1] := GetChar(OKSet + [Chr(13), Chr(27)])
          Else If Length(InString) = MaxLen
                 Then S1[1] := GetChar([Chr(13), Chr(8)])
                 Else S1[1] := GetChar(OKSet + [Chr(13), Chr(8)]);
        If S1[1] In OKSet
          Then InString := Concat(InString, S1)
          Else If S1[1] = Chr(8)
                 Then Delete(InString, Length(InString), 1);
      Until S1[1] = Chr(13);
      WriteIn;
    End;  { ReadRequest }

    Procedure EndDirPage;
    { Handles end of page for directory display. }

    Var
      Ch : Char;

    Begin
      Ch := Chr(27);
      If I < GoodFiles
        Then Begin
               Write('Type <space> to continue');
```

```
                Read(Ch);
                Writeln;
              End;  { If I..Then }
      If Ch = Chr(27) Then Exit(ShowDirectory);
    End;  { EndDirPage }

    Procedure EndListPage;
    { Handles end of page display for recall and save. }

    Var
      St : String[32];
      NumString : ShortString;

    Begin
      If I = GoodFiles
        Then St := 'exit'
        Else St := 'continue';
      St := Concat('# to accept, <RTN> to ', St, ': ');
      Write(St);
      Repeat
        Gotoxy(Length(St),0);
        ReadRequest(NumString);
        FileNo := Val(NumString);
        GotFile := (FileNo > 0) And (FileNo <= GoodFiles);
        If ((Length(NumString) > 0) Or (I = GoodFiles))
                        And Not GotFile Then Write(Chr(7));
      Until GotFile Or (Length(NumString) = 0);
      If GotFile Then FileReq := FileName[FileNo];
    End;  { EndListPage }

  Begin  { Request }
    Gotoxy(0,0);
    If Op = DirList
      Then EndDirPage
      Else EndListPage;
    If I < GoodFiles
      Then Begin
             Page(Output);
             Gotoxy(0,1);
             Writeln(DiskName, ':');
           End;  { If I..Then }
  End; { Request }

Begin  { ShowDirectory }
  ReadDirectory;
  I := 1;
  GotFile := False;
  If GoodFiles > 0
    Then Begin
           Gotoxy(0,1);
           Writeln(Chr(11), DiskName, ':');
           While (I <= GoodFiles) And Not GotFile Do
             Begin
               Writeln(I : 2, '  ', FileName[I]);
               If (I Mod 21 = 0) Or (I = GoodFiles)
                 Then Request;
               I := I + 1;
             End;  { While (I.. }
         End  { If GoodFiles..Then }
    Else Writeln(Chr(7), DiskName, ' - No matching file names');
End;  { ShowDirectory }

Function ReqFileGood : Boolean;
{ Appends suffix to requested file name if not already there and }
{ not terminated by '.', then returns true if result does not    }
{ exceed allowed length.                                         }

Var
  Good : Boolean;

Begin
  If (FileReq[Length(FileReq)] <> '.') And
     (Pos(Suffix, FileReq) = 0)
    Then FileReq := Concat(FileReq, Suffix);
  Good := Length(FileReq) < 16;
  If Not Good Then Writeln(Chr(7), FileReq, ' - Illegal file name');
  ReqFileGood := Good;
End;  { ReqFileGood }
```

```
Function FileMatch(Name : String) : Boolean;
{ Returns true if requested filename is matched by name on disk. }

Var
  I : 1..MaxFiles;
  Match : Boolean;

Begin
  ReadDirectory;
  I := 1;
  Match := False;
  While (I <= GoodFiles) And Not Match Do
    Begin
      Match := (FileName[I] = Name);
      I := I + 1;
    End;  { While (I.. }
  FileMatch := Match;
End;  { FileMatch }

Function SaveIdGood : Boolean;
{ Requests filename for save, and if no name given, displays all file }
{ names with matching suffix for selection.  Returns true if good     }
{ filename requested and if approval is given to remove any existing  }
{ file with the same name.                                            }

Var
  Good : Boolean;

  Function GoodName : Boolean;
  { If required, displays list of existing files.  Returns true   }
  { if good filename requested for save, and if already existing,  }
  { approval has been given to remove old file.                    }

  Var
    Good : Boolean;

    Function MayRemove : Boolean;
    { Requests approval to remove existing file with same name; }
    { returns true if approval given.                           }

    Var
      Ch : Char;

    Begin
      UnitClear(1);
      Write('Remove old ', DiskName, ':', FileReq, '? ');
      Read(Ch);
      Writeln;
      MayRemove := (Ch In ['Y', 'y']);
    End;  { MayRemove }

  Begin  { GoodName }
    If NoFile
      Then Begin
             ShowDirectory(Good);
             If Good Then Good := MayRemove;
           End  { If NoFile Then }
      Else Begin
             Good := ReqFileGood;
             If Good
               Then If FileMatch(FileReq)
                      Then Good := MayRemove;
           End;  { If No File..Else }
    GoodName := Good;
  End;  { GoodName }

Begin  { SaveIdGood }
  Good := False;
  If GoodVol('Save as what file? ') Then Good := GoodName;
  SaveIdGood := Good;
End;  { SaveIdGood }

Function GetIdGood : Boolean;
{ Requests filename for recall, and if no name given, displays all }
{ filenames on disk with matching suffix for selection. Returns    }
{ true if existing filename is requested.                          }
```

```
  Var
    Good : Boolean;

  Begin
    Good := False;
    If GoodVol('Get what file? ')
      Then If NoFile
             Then ShowDirectory(Good)
             Else Begin
                    Good := ReqFileGood;
                    If Good
                      Then Begin
                             Good := FileMatch(FileReq);
                             If Not Good
                               Then Writeln(Chr(7), DiskName, ':',
                                            FileReq,' - File not found ');
                           End;  { If Good Then }
                  End;  { If NoFile..Else }
    GetIdGood := Good;
  End;  { GetIdGood }

  Procedure PeriTest;
  { Carries out initial test to check which disk drives are on line. }

  Var
    D : DiskVol;
    Disk : DVolSet;

  Begin
    Disk := [4, 5, 9..12];
    OnLine := [];
    For D := 4 To 12 Do
      If D In Disk
        Then Begin
           {$I-}
             UnitClear(D);
             If IOResult = 0 Then OnLine := OnLine + [D];
           {$I+}
            End;  { If D..Then }
  End;  { PeriTest }

  Procedure GetOp;
  { If Filer op was specified, displays menu of options, and requests }
  { selection of required operation.                                  }

  Var
    Ch : Char;

  Begin
    Repeat
      Page(Output);
      Write('Filer: S(tore, R(ecall, L(ist, Q(uit');
      Read(Keyboard, Ch);
      If Ch In ['a'..'z'] Then Ch := Chr(Ord(Ch) - 32);
    Until Ch In ['S', 'R', 'L', 'Q'];
    Case Ch Of
      'S' : Op := Save;
      'R' : Op := Recall;
      'L' : Op := DirList;
      'Q' : Exit(GetIdent);
    End;  { Case }
    Page(Output);
  End;  { GetOp }

Begin  { GetIdent }
  Op := Operation;
  PeriTest;
  If Op = Filer Then GetOp;
  Case Op Of
    Recall  : Good := GetIdGood;
    Save    : Good := SaveIdGood;
    DirList : If GoodVol('Dir listing of? ')
                Then ShowDirectory(Good);
  End;  { Case }
End;  { GetIdent }
```

```
  Begin  { FileIdent }
    Page(Output);
    Good := False;
    GetIdent;
    If Good
      Then Album := Concat(DiskName, ':', FileReq)
      Else Album := 'No file selected';
    FileIdent := Good;
  End;  { FileIdent }

Begin  { Dummy }
End.

]FILEDUMPDIRECTTEST.TEXT
{$C 29/08/82 Chris W. Green }
Program Directtest;
{ Demonstration program to show how Unit Directstuff is used }

Uses Directstuff;

Var
  Ch : Char;
  Suffix, Reply : String;
  Operation : DiskOp;  { Declared in Directstuff }

Begin
  Repeat
    Repeat
      Page(Output);
      Write('DStuff: S(tore, R(ecall, L(ist, F(iler, Q(uit');
      Read(Ch);
    Until Ch In ['S', 'R', 'L', 'F', 'Q'];
    If Ch <> 'Q'
      Then Begin
             Writeln;
             Write('Enter Suffix: ');
             Readln(Suffix);
           End;  { If Ch..Then }
    Case Ch Of
      'R' : Operation := Recall;
      'S' : Operation := Save;
      'F' : Operation := Filer;
      'L' : Operation := DirList;
      'Q' : Exit(Program)
    End;
    If FileIdent(Operation, Suffix, Reply)
      Then Write('True: ')
      Else Write('False: ');
    Writeln(Reply);
    Read(Ch);
  Until False;
End.
```


**Powerful — Economical — Professional**

Peripherals for your Apple II*

MasterCard VISA

A/D 12-Bit, 16 Channel $450.00 AD — 121602

- Simple Software Selection of Channels
- Range ±10, ±5, ±2.5, +5, +10
- High-Speed 25 μ Sec. Conversion
- Full Software Support — Disk or Prom
- Adjustable Bipolar Reference

Ultra Rom Board/Editor $190.00 APB — 102

- Powerful G.P.L.E. [Global Program Line Editor] built in
- Includes: Search and Replace — Insert and Delete — and much more
- Edit programs 2 to 5 times faster
- 32K of Bank Switchable ROM Space
- Totally Transparent - Remove or Reload with a few keystrokes - without disk!
- Extensive Macro Table eliminates multiple keystrokes for common operations
- Useful Ampersand [&] Utilities all in one place
- Applesoft* Extensions including "IF, THEN, ELSE"
- Support for other HOLLYWOOD HARDWARE Products in Rom

**6842 Valjean Avenue, Van Nuys, California 91406 (213) 989-1204** *Trademarks of Apple Computer Inc.

Circle 49 on Reader Service Card

AN APPLE FOR THE TEACHER:

# 30 Crates of Apples

Wesley R. Felty

RIGHT now is an exciting and challenging time in education. School districts are realizing that computers really belong in the schools. Things are starting to move really fast, unfortunately often with inadequate preparation. It is not unusual for a school to suddenly find itself with thirty crates of Apples and the giant sized question, "What do I do with all of these"?

The speed with which these changes are coming about are unfortunately causing many problems. When thirty crates of Apples arrive, where did they come from? What do we do with them? Who unpacks them and sets them up? Where do they go...do they stay together in the math lab or get scattered all through the building? How does the school staff feel about the machines? What department has responsibility for staff training, scheduling, maintenance, etc. of the machines? And what can be done to make sure that the computers reach their full potential of use? These are just some of the important questions raised by the computer's sudden appearance in the schools. This whole field is so new that no one knows the answers yet. The purpose of this article is to bring out into the open a number of the questions and problems. The arrival of thirty crates of Apples is a mixed blessing which can cause shock waves throughout the school.

*. . . about the author*

*Wes Felty is a Physics, Chemistry, and Math teacher at Seattle's Cleveland High School. He's been programming on the Apple for two years and has taught classes through Everett Community Schools, Everett Community College and Seattle Pacific University on High–Res Graphics, advanced BASIC, Machine Language, and using computers in Education. In fact, he paid off his computer in its first year of use by what he produced on it. His main interests are in internal structure (pointers, "What's Where," etc.), High–Res Graphics, Input/Output filters, and most recently how to use computers in education.*

*Wes is completely self–taught, using mostly* Call –A.P.P.L.E., *especially "In Depth" and old back issues where Val and crew were discovering what made the Apple tick. In fact, being self–educated, Wes finds himself not "qualified" to teach about computers in Seattle School District. Since he has no college credits on file in this subject, and in a typical school district "Catch 22," Seattle says that he lacks the qualifications. Now, if he could take the classes that he is teaching, then he would be qualified to teach about computers in Seattle. He is currently designing and teaching courses on using the computer in the classroom for Lake Washington School District.*

*When not "hacking" on the computer, Wes enjoys white kayaking and canoeing, spending most of his time going* upstream *on white water rivers. Wes was the Northwest Canoe Poling champion for five years before he quit racing. In fact, he originated up river racing, and always won since everyone else was smart enough to race down river instead of up.*

Many school districts presently lack the connections to intelligently purchase high tech equipment, like computers and software. Which brand has the greatest benefit for our programs (Oops...We don't have any programs yet)? Should we use the same brand computer in the grade school and the high school? Let's use "the *good one*" in the high school and the cheap one in the elementary school. "What's that you say? Why are the younger students, with less skills, working on the harder to use machines?" "You say this Brand X computer that we just bought 300 of has no software for education? But, we got such a deal on the machines!" "Don't the teachers write their own programs?" "This computer looks great on paper, but is broken down much of the time." "Should we take this low bid for the package with a three month warranty, or this higher bid with a nine month warranty?" "We'll take the low bid. The high bid will cost less in the long run; but then, maintenance comes from another department's budget." "This company has the low bid, but if this 'clone' company loses its court cases, it will be out of business."

This first problem of buying the computer is a very challenging one for the districts. The district I teach public school in *talks* a lot about what it is doing, but hasn't really committed itself to putting machines into the buildings. The top administrators like to get their pictures in the paper standing beside a computer, but that is about as far as their commitment goes. There are computers in many of the schools, but that is mainly due to the wheeling and dealing of some progressive teachers. A couple of our schools have been teaching programming for five years. Long before it was fashionable or the newest fad.

# 30 CRATES OF APPLES

The district that my wife teaches in has committed itself to using Franklin Aces and Apple *IIe*'s in High School and Grade School, but is presently only giving one or two machines to each Grade School. Talk about one computer and 30 kids... what about one computer and 300 kids. The district where I teach Teacher Workshops on using the computer (Lake Washington) uses Apples in the High School and Pets in the Grade School. They have, in their curriculum office, over a hundred disks and tapes that teachers can come in and copy for their own classroom use. They are also currently purchasing a computerized Grade Book program to be available for use throughout the district.

Once a district decides to join the computer generation, then what? School districts buy equipment with the lowest bids, but how many districts know what all the bids should include. Which machines and what accessories is of course important, but several districts that I know of didn't realize that if they bought Apples, then they needed to buy monitors. Imagine the frustration of having 30 new Apples and no monitors. Some districts have purchased computers, monitors, disk drives and software to use for text processors and then discovered that they didn't have any printers. Or what about the school that bought the $300 Text Processor program just to find that it needed CP/M, a language card, and an 80 column board to use it? Do you think they spent another thousand dollars to be able to use that $300 program?

Another "hidden cost" that should be included in the bid is setup. Unpacking, setting up, and checking out a computer is *not* like unpacking a case of text books. Each computer needs to be tested. A diagnostic test should be run on all of the ROM and RAM and the disk drives should be checked for correct speed and alignment. No matter what shape the computer left the factory in, it is necessary to discover what shape it is in upon arrival. Chips *can* come loose and disk drive heads can be knocked out of alignment. The ROMS should be burned in for 24 hours and all systems should be checked. If these items are not in the bids, it is easy to accept a defective $1000 machine. And many defects do not show up right away. Two or three out of the 30 Apples where I teach computer use have defects that I am sure were there when the computers were delivered. The problems are just now fully surfacing (the 30 day warranty just ran out). The Math Lab Aide did a good job of unpacking and setting up the equipment, but she just didn't have the background and training to know what to look for. She, unfortunately, is the one who suddenly finds 30 crates of Apples on her doorstep.

Warranties are of course another important consideration for bids. Especially if the computers will be set up by and used with inexperienced people, a longer warranty is needed. It's easy to see the value of an extended warranty, unfortunately, by the cost attached to it. Some purchasers have found the best way to get a better warranty is to go to another version of the machine. For example, the University of Washington Education department found it was cheaper to get 90 day warranties when they bought the black Bell & Howell machines instead of the "standard" Apples. The Bell & Howell Apples also gave a number of features that would have cost extra on "standard" Apples (like shift key modification).

Most of these problems illustrate another need of the school districts. If they are going to commit themselves to computers, they definitely need a district computer specialist. He/she, at least, would have been aware of all of these previous problems. If installation is not part of the original equipment bid, then at least let an expert supervise the unpacking, set up, and testing. An expert is also needed to maintain the equipment, or at least be able to tell if it needs repair. Why send a computer back to California for repair when all that is wrong is a chip that has become loose?

Other specialized duties could include training the staff to use the computers, acquire and analyze software, customize software for individual teacher use (I am currently writing programs to allow Apple Writer and Screen Writer to process text in French, Spanish, German, Swedish, and Italian; using their special symbols and punctuation, as well as adding super and subscription for the Math and Science people). On second thought, maybe the school districts need a whole computer department.

Finally, after the districts set up the computers, they need to set up staffs. Many people out there feel quite threatened by the arrival of these machines. An attendance secretary may be told "next quarter, you'll do all of the attendance on a computer. It will come in on the first day of the quarter." What does she think of this? "If I touch the machine, it will blow up" or "If I hit the wrong key, I'll destroy all of the records for the whole school district!" These are the messages that I have been hearing. Or, what about the typing teacher who is told "next quarter you'll have to teach text processing on the new computers?" When he/she finally looks at the manual, it says "BOOT the disk." Now that's an idea! Let's boot the disk and the computer right out the door.

If a district is going to commit itself to using computers, it must commit itself to training the people who are going to use them. When I teach a class on "Introduction to the Computer," I start with a room full of people who "have to" use the computer and end with a room full of people who "want to" sneak the computers into their rooms. Using computers can be fun, but not when you don't know how. Most people are threatened by having to use high tech equipment that they don't understand. And teachers are even more threatened than most people. I've made some interesting discoveries. High school teachers seem more threatened than elementary teachers, and men more than women. I believe this is largely due to a feeling of need to maintain an image of being an all knowing expert in front of the students. Elementary teachers are more willing to say, "Gee, I don't know how to use this computer either. Let's have fun and learn to use it together." Some teachers may also fear that their students will pass them up. But, that should be a compliment. A good teacher encourages each student to go to his/her own limits, not just to their teacher's limits.

What should these staff training classes teach? Programming? NO, NO, NO! A teacher needs to learn as fast as possible to *use* the computer as a tool, not to program it. Learning to program is a good way for some people to learn to use computers, but is far too slow and not appropriate in most cases. You don't learn how to build a car in order to be able to drive it! Programming takes lots of special talent and time. The Grade Book program purchased by Lake Washington School District in Seattle has been being developed for four years by two talented programmers. So what is it going to take for a teacher new to the computer to write his/her own grade book program? Why should he/she bother? Condor Computing's program is already available. Expecting teachers to write their own software would be like giving them a movie projector and expecting them to make their own instructional movies.

Where do the computers fit in the school? When most people think of computers, they think of math classes. But computers don't do math problems, calculators do arithmetic problems. When I was first considering getting a computer on my own, I asked myself, "Do I do any math or science problems that are hard enough to need a computer?" Two years later I found that I never did do any hard math or science problems on my computer. Computers process data and handle mundane details. My computer doesn't think out hard problems for me, it does tedious calculations for me. It remembers the scores on 20 assignments for 150 students, adds up all of their total points, and assigns letter grades according to rules that I gave it. It then "stands back" and lets me add a human touch. What used to take me two to three days now takes less than a minute. I can give any student his total grade at any time. I can print out progress reports to send home or to the counseling office that list all of the student's scores as well as his total grade. I balance my check book, keep tax records, and write articles like this on my computer.

Learning to program takes mathematical skills, so the computer is appropriate in the Math Department; but it also handles data and processes text, so it belongs in the Business Department. But it allows graphics to be created and music to be played, so it fits in the Art and Music Departments. If the computer were just for solving difficult problems, it would only be needed in the high schools or colleges; but it supplies drill in basic skills and teaches problem solving techniques, so it is even more valuable in elementary school. In fact, with software like Logo, programming can be taught at all grade levels.

The computer's use is self-rewarding to most students, so it is very valuable for working with less motivated kids. Give a text processor to a student who doesn't like to write and watch him/her get motivated to create something on the computer. Special Education students can probably benefit the most from the computer since they need so much drill and attention. The only problem is that some computers may be inappropriate for them. The Apple *II*e and Franklin computers, with their auto repeat features, may wreak havoc with uncoordinated fingers.

Computers need to be spread throughout the school, not locked up in the math lab. Or, at least the rest of the school needs access to them. There probably needs to be at least three groupings. One in the math lab for programming classes. Another in the Business classes for office skills training. And a computer resource center where a teacher can send a student with a disk to work on a concept that he needs help with. Computers in the library and faculty workroom are also good touches.

The final problem is software. No computer is useful without well developed and appropriate programs to run in them. There isn't much good quality software for education yet, but then there wasn't much of a market before now. Not only does good equality software need to be developed, but school districts need to develop channels to solicit it, evaluate it, field test it, distribute it, and teach the teachers to use it.

The computer, like most good tools, causes as many problems as it creates. But these new problems are much less important than the problems that the computer solves. Woe be to the teacher that thinks that the computer is going to save him/her work. If he/she is dedicated, he/she will find a year later that the computer allowed him/her not to do less work, but to achieve more than he/she had ever achieved before.

# APPLE® MODEM. WITH EVERYTHING.

# $129

Your best buy in modem history. The **Networker**™ a plug-in single-slot direct connect modem for your Apple II, II+, and IIe (or Franklin, Albert, or other Apple compatible computer). You are immediately linked to the vast network of computers — data bases like the Source,® Compuserve,® or Dow Jones,® friends, banks, businesses, and hundreds of local "bulletin boards." For only $129. There's absolutely nothing else to buy. And it even comes with software.

This is the modem that does it all, and does it for less. The Apple Communications Card is on board, so you won't need to buy one. That will save a bunch. It's 300 baud, the most commonly used type of modem. It comes complete with its own communications software on Apple compatible disk, giving you features ***no*** modem offers.

Like "data capture" to lock the messages into your Apples' RAM, and then move the information onto a disk for easy reference and review. A terminal program that turns your computer into a communications command center, displaying on-screen "help" menus, continuous updates of memory usage, carrier presence, baud rate, communications status, all while taking in and displaying information from any computer.

The **Networker** supports both originate and answer modes, so you can send and receive information, in full or half duplex modes. And its all easily programmable right from the keyboard of your Apple computer. All you do is plug **Networker** into any slot (except 0) in your Apple computer. It'll even ask you what slot it's in. It's that easy to use.

## NETMASTER™ COMMUNICATIONS SOFTWARE

For $179 we include the even more incredible **Netmaster** software for advanced users. **Netmaster** is a "communications freeway" that lets you speed any Apple file to another Apple through noisy phone lines, without errors. **Netmaster** even includes its own Disk Operating System to control the flow of information and leave you over 40K of "buffer" memory from your 64K RAM. And there's always help when you want it. On screen. Status indicators keep you fully updated.

**Netmaster** will let you transfer games, computer graphics, programs, sales reports, documents, any DOS 3.3 file, all directly from disk to disk, all with computer (not telephone) accuracy. **Netmaster** is completely configurable to understand any computer, even mainframes. File size is unlimited.

But **Netmaster** is not stuffy. It will talk to the other communications packages like Visiterm® or ASCII Express® Of course they don't support **Netmaster's** superb error checking, that guarantees you won't miss even a comma. It doesn't only talk to the Networker either. It will also talk to those more expensive modems from Hayes and Novation.

And **Netmaster** is fast. It transfers information disk to disk three to five times faster than the others. Of course **Netmaster** is fully compatible with them. But if you want things to happen really fast, talk to another Netmaster.

We sell **Netmaster** by itself for $79, and even if you have another modem for your Apple, **Netmaster** is an outstanding value. It will even support auto dial and auto answer. **Netmaster** requires 48K of Apple memory, disk drive and DOS 3.3, and ZOOM's **Networker** modem or another modem. It can also be used without a modem when two Apples are hardwired together, using a 6850 or 6551-based interface card.

**Networker**, **Netmaster**, and **Networker/Netmaster** combo are all produced in the USA by ZOOM Telephonics, producers of the popular **DEMON DIALER.** The Networker is FCC registered, and all products come with a one-year warranty.

## HOW DO I GET ONE? OR TWO?

**Check with your computer dealer. Or call us direct at 1-800-631-3116, and we'll let you know where to get them in your area.**

**Massachusetts residents call 617-423-1288.**

The following are trademarks: Apple by Apple Computer, the Source servicemark by Source Telecomputing, Compuserve by Compuserve, Dow Jones by Dow Jones & Company, Visiterm by Visicorp, ASCII Express by Southwestern Data Systems, DEMON DIALER by ZOOM Telephonics. ©1983 ZOOM Telephonics, Inc.

ZOOM Telephonics, Inc.
207 South Street, Boston, MA 02111

A **Call —A.P.P.L.E.** SOFTWARE REVIEW:

# ARADEMIC SKILL BUILDERS

Kathryn Hallgrimson Suther/reviewer

*Arcademic Skill Builders*
*school package* *$39.00*
*w/o flash cards etc.* *$29.95*
*Developmental Learning Materials*
*One DLM Park*
*Allen, TX 75002*
*copy protected*
*–no back-up policy yet*

LOOKING back at the June issue of *Call –A.P.P.L.E.*, both Mike Shadick and Mark Cross made references to "Arc Ed—Arcademics." We hope, through examining these "Arcademic Skill Builders for Math" by Developmental Learning Materials, to shed some light on a falacy... that educational software is *boring* and that learning cannot be fun.

These programs were designed for use with either an Apple 48K, disk drive and monitor or a Texas Instrument module version with a monitor. You may use game paddles or the keyboard (which I used in testing these products). Bear in mind, Developmental Learning Materials did not develop these programs to make the classroom teacher and/or existing math curriculum obsolete. Their purpose is to provide the necessary drill required to improve or gain fundamental math skills.

The six math programs; Alien Addition, Minus Mission, Dragon Mix, Alligator Mix, Meteor Multiplication, and Demolition Division exemplify the arcadian approach. These programs are each graphically and thematically unique, cover the fundamentals addition, subtraction, multiplication and division with numbers 0 through 9. We should mention the important fact that they are *user friendly.* Within minutes, anyone can sit down at the computer and use these programs.

Each program provides a menu where you can adjust the level of speed and choice of numbers you wish to cover. Watch out for the higher speeds, as they're a challenge to adults as well as experienced younger people. Your hits and misses are displayed on the screen after completion of the task...or can we safely refer to the individual programs as games?

To aid in the teachers' supervisory responsibilities, each school program version contains: flash cards, student record sheets, worksheets for additional practice away from the computer, a progress chart, and strategies for improvement sheet. In other words, we not only have stimulating programs, but we also have additional instructors' materials which are both helpful and well planned.

If your children at home, or children in your classroom are working on addition and subtraction, the programs Alien Addition, Minus Mission and Alligator Mix can provide the motivation necessary to acquire these skills.

Alien Addition is written around an "alien invasion" theme. Addition problems within spaceships move down the screen towards a cannon on a platform. The object is to answer each problem and then fire with your space bar. You use the arrow keys to move the cannon left and right. If a problem is not answered in time, watch out for an "atomic cloud".

Minus Mission provides a clever thematic change. Now we have "creeping slime," an effective change in both color and objective. The top of the screen displays green slime, dripping lovely blobs of subtraction problems. A robot, at the bottom of the screen, is used in conjunction with the answer to fire laser beams at those nasty blobs of slime.

After working with addition and subtraction, Alligator Mix nicely combines these two skills. Apples, with addition and subtraction problems inside them, approach an alligator who displays an answer. If the problem and answer match, open the alligators' mouth with the space bar and eat it. If they do not match, keep that beast's mouth shut or prepare yourself for the side effects of a "bad apple." Five alligators appear within each game, each are fed ten apples.

Are you ready now for multiplication and division? We thought the developers would have taken the easy way out...re-use the effective themes already established. But, this is not the case. Again we have three original and refreshing themes.

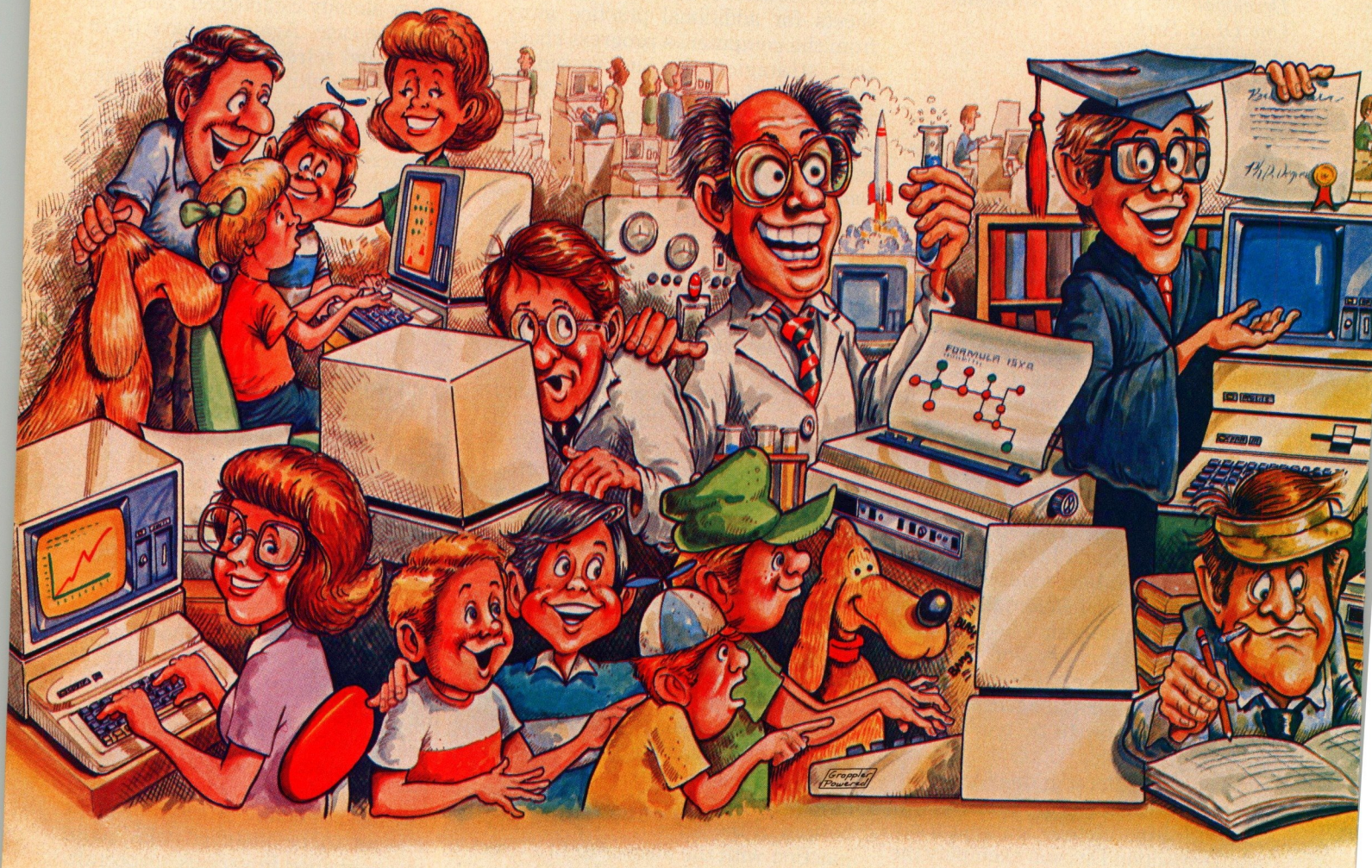
Meteor Multiplication has a "meteor shower" format. A star station, containing the answers, is displayed in the center of the screen. Meteors approach the station carrying problems to be solved. You have the option of accepting the answer in the star station or keying in your own. Use your arrow keys again to take aim and fire. We're sure young students, adults and alike will be impressed with the challenge this program provides.

Wargames are also included on this tour of educational games. Demolition Division supplies us with the necessary tanks, cannons and blockades fundamental to warfare on the fields of yesterday, and yes, even today. Tanks, possessing division problems, approach the wall around your guns. You now use your right and left arrow keys to move up or down, firing with your answer in hopes of destroying the tanks before they demolish you.

Our last program, Dragon Mix, concludes our tour and provides drill with multiplication and division. A dragon, protecting a city, displays answers to be matched with problems contained in various spacecraft. Fire when the dragons' tongue points to a correct match. It's the only way to save the city from annihilation, which I might add, is a marvelous graphics display.

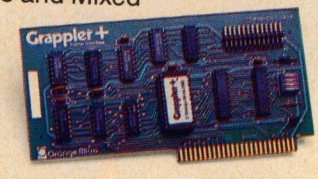
Considering the quality of this software, educators and/or parents will find these programs valuable for their childrens' mathematical enrichment. Also, school districts who order the complete set of programs, get $12.00 off the total cost. Hopefully you will think seriously about adding these products to your educational software collection.

# Satisfying Over With Innovation



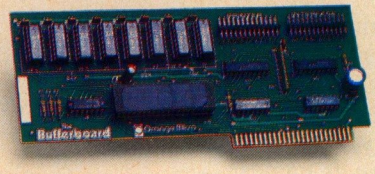

## Grappler™ + Printer Interface

The Original Apple® graphics printer interface. Since its introduction three years ago, the Grappler has been imitated by many, but never matched. Now with Dual Hi-Res Graphics for side by side reproductions and Mixed Mode screen dumping, the Grappler + remains the most intelligent interface available. Over two dozen commands give Apple users full control over any graphics or text on the Apple Screen, including a new 80 column text dump. Performance, reliability and support have made the Grappler + the #1 selling intelligent Apple interface.



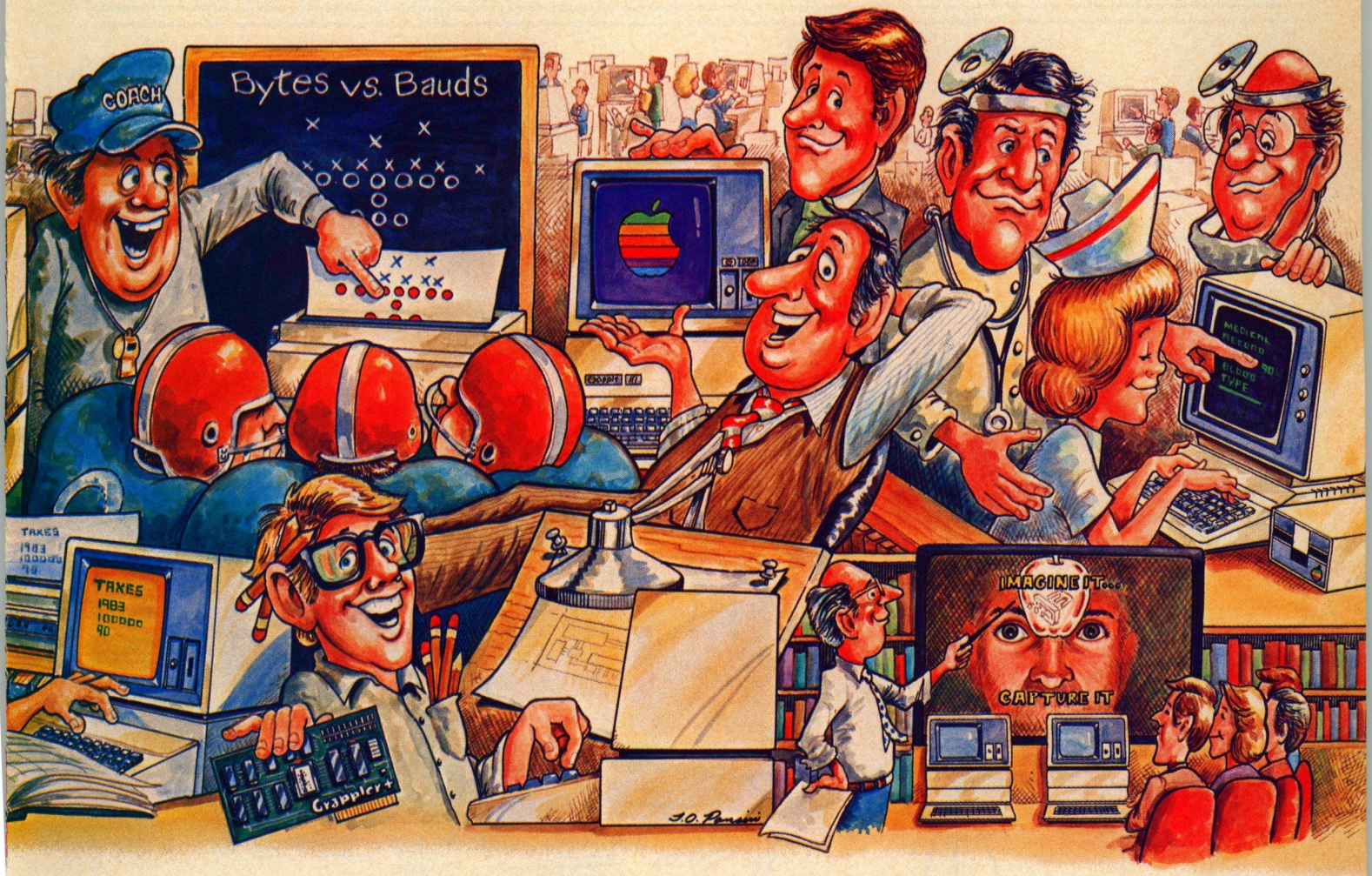

## Bufferboard™ For Apples and Printers

The economical way to add printer buffering. The Bufferboard easily adds memory to your current Apple interface system, freeing your computer for additional input. Easily upgradable from 16K, the Bufferboard can store up to 20 pages of text. It fits neatly inside your Apple, "Docking" onto your existing printer interface.* No clumsy boxes or cables, no external power supplies…just convenience and economy. With the Bufferboard, you might never wait for your printer again.



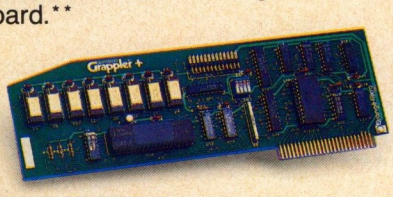

*Versions for standard Grappler + , Epson APL and Apple Parallel Interfaces.

# 75,000 Apple® Owners And Excellence.




## BUFFERED Grappler+™

The most sophisticated buffered Apple printer interface available. The New Buffered Grappler+ combines the industry leading features of the Grappler+ with the time saving economies of the Bufferboard.**




With this much interface power, you'll never need anything else. And the price will surprise you, too.

**Not available for IDS printers.
Apple is a registered trademark of Apple Computers, Inc.

Over 75,000 Apple computers are using Orange Micro products. Innovation and excellence have made us the #1 manufacturer of intelligent printer interfaces. The top selling Grappler+ has become an industry standard, recommended by more software houses and Apple dealers. To meet the users' latest needs, Orange Micro is working to develop new products, like the color Grappler+ for IDS color printers and the new Buffered Grappler+. There is an Orange Micro product designed for your application.

For a complete demonstration, see your Apple dealer today.

Orange Micro inc.

1400 N. Lakeview Ave., Anaheim, CA 92807 U.S.A.
(714) 779-2772 TELEX: 183511 CSMA

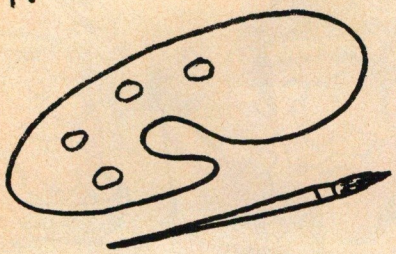
©Orange Micro, Inc., 1983

Circle 24 on Reader Service Card

# APPLE ART

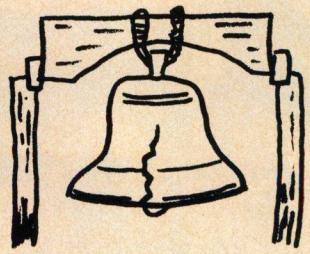
Jack Bender

A.

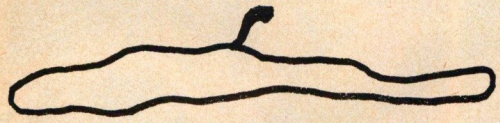


B.

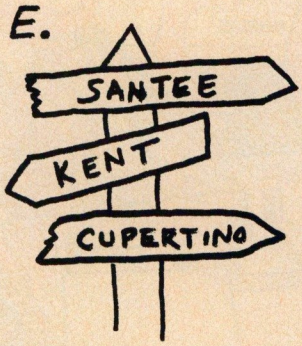
C.



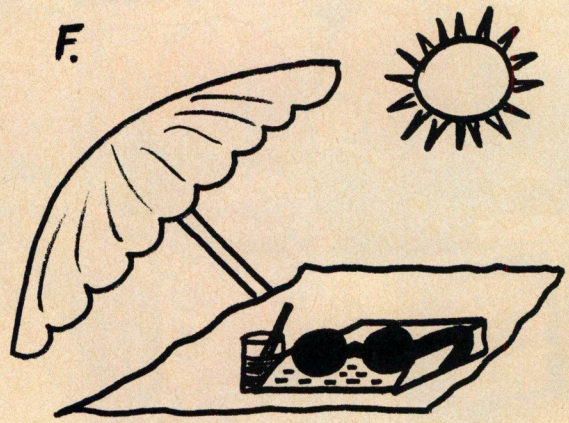
D.



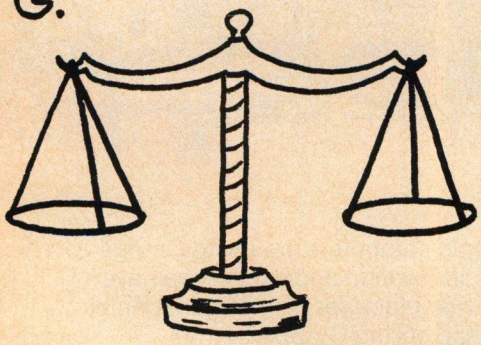
E.



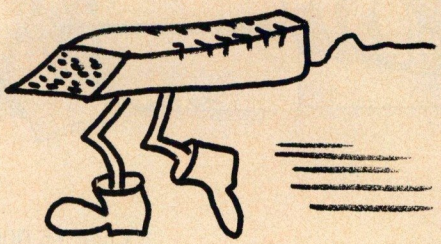

F.



G.



H.

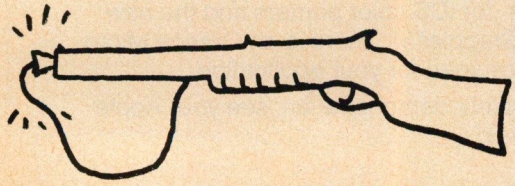


Match the token or CALL with the picture.

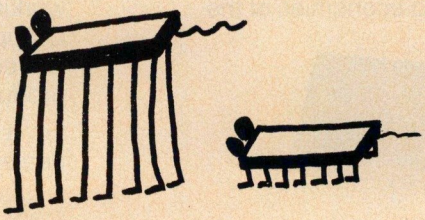
1) $93 _____
2) $99 _____
3) $AC _____
4) $EO _____
5) $A3 _____
6) $A1 _____
7) $DF _____
8) $E2 _____
9) CALL -8192 _____
10) CALL -1052 _____

Answers on page 68

I.



J.



JAPAN MICROCOMPUTER SHOW:

# APPLE BLOSSOMS

Val J. Golding

VIVA la difference! May 24 was the date we visited the *Japan Microcomputer* Show in Tokyo. For this trip, we were accompanied by A.P.P.L.E. Marketing Manager *Kevin Donohoe,* Treasurer *Bob Clardy,* and *Mike Branham* of Synergistic Software, along with *Bob Ramsdell, Wayne Green* and others of note in the computer industry, worldwide.

In some areas the differences are great in comparison to the style in which a U.S. show is presented. The visitor is immediately bedazzled by the utter brilliance and melding sound emanating from the various exhibits. Nearly every booth is constructed with arrays of high intensity fluorescent back-lit frosted glass panels. Each exhibitor, almost without exception, employes one or more attractive oriental beauties who, microphone in hand, deliver un-ending, and presumably glowing descriptions of their manufacturers' product lines.

A sizeable show of some 200 or so exhibitors in three halls, its scale was small with respect to shows like the West Coast Computer Faire. Its flavor differed greatly too, in that here, almost the entire accent was on systems, with very little supporting peripherals and external devices such as printers and monitors. Only in a few booths in one hall did we find this type of product.

All the major Japanese manufacturers were represented with both 8-bit and 16-bit machines, and included lines such as *NEC, Epson, Fujitso, Sony* and *Hitachi.* Many of these are truly state-of-the-art machines and virtually any one, if properly supported by a *complete* software line, could be a winner in the United States.

Because of an almost complete lack of software, we do not see this in our crystal ball. Much of the existing software is available only as cassette tape, and we noted only a single producer of any stature, *Hudsoft,* at the show.

Apple keeps a very low profile in Japan, and, indeed, we spotted only one booth which had about eight machines set up and running. It is possible that a concerted marketing campaign by *Apple Computer, Inc.* could bring about a change, but pushing a seven year old design, regardless of how advanced it was at one time, would be an expensive and perhaps fruitless undertaking.

Nevertheless, in Tokyo's *Akihabara* electronic shopping district, a fair number of Apples were to be seen. If by chance you plan a visit to Tokyo, plan a full day at Akihabara, a computer/electronics fiend's paradise. It and the other interesting shopping centers are easily and speedily accessible by Tokyo's vast network of subway and surface electric rail lines.


Version 4.0

**The Ultimate APPLE® Utility Program**

**COPY II PLUS**

Now you can back up your protected software. Copy II Plus is the most sophisticated bit copy program available. It handles synchronized tracks, half tracks, nibble counting, bit insertion and other protection schemes. It also includes a comprehensive discussion of disk format and protection techniques, and instructions on how to back-up dozens of popular programs. A disk system and speed check assure your drives are running in top condition and a nibble editor will allow you to repair damaged diskettes, analyze protection schemes, etc.

The last DOS utility disk you will need. Fully menu driven, the Copy II Plus utilities include a catalog display with binary file addresses and lengths, a disk usage map, and the ability to verify and compare files for differences. It can copy, lock, unlock and delete files and DOS can be copied, or removed from a disk to free up space. You can change the greeting program on a DOS disk, or initialize a disk from scratch. The Copy II Plus sector editor will allow you to view and modify data in either hex or ASCII format.

For your convenience, Copy II Plus is not copy protected for backup.
Available at fine computer and software stores or direct from:

CENTRAL POINT Software, Inc.

P.O. Box 19730-203
Portland, OR 97219
(503) 244-5782

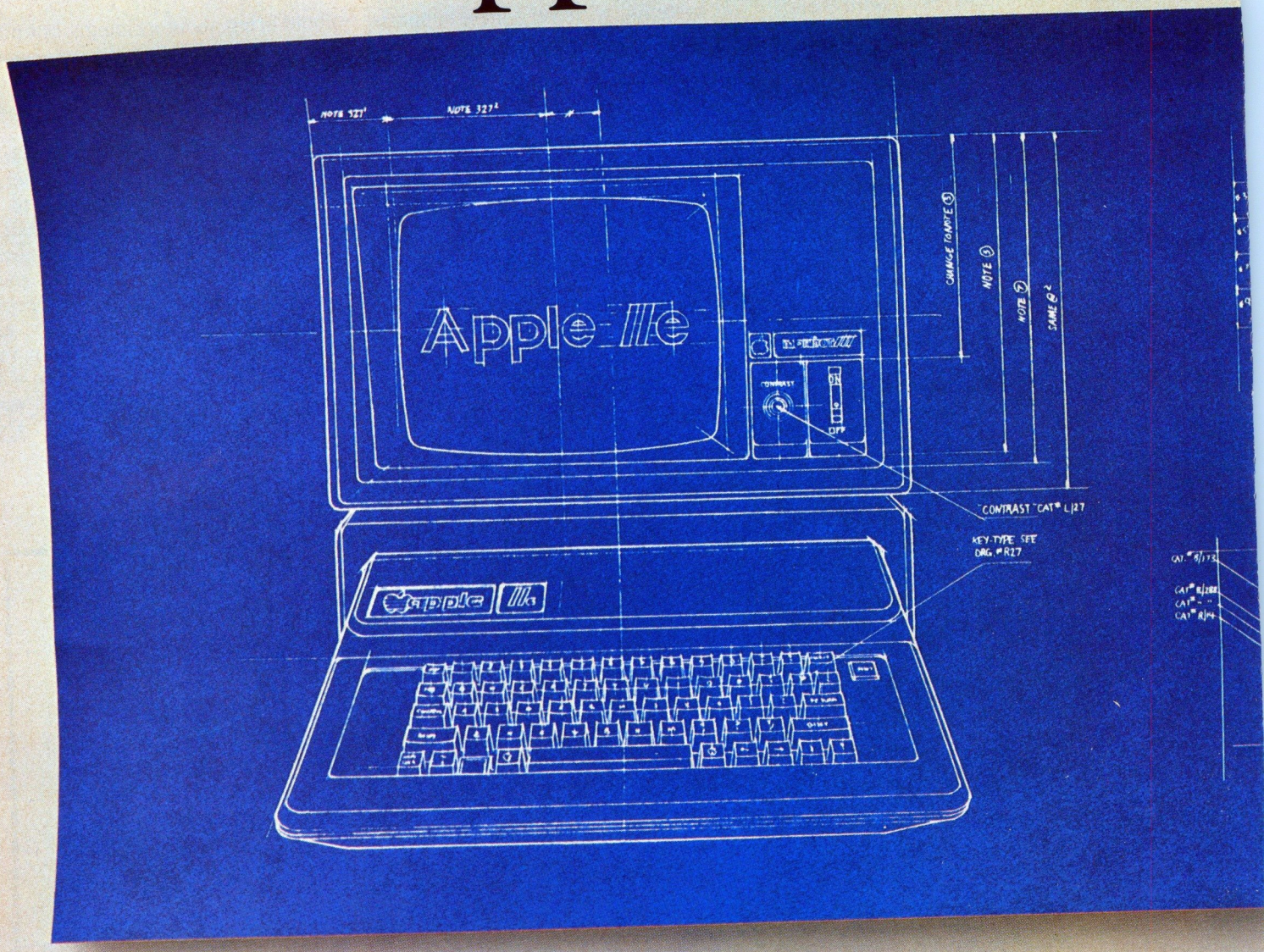
$39.95

*Attention current Copy II Plus owners:* Return your original disk with $19.95 for an update to Version 4.0.

*Attention IBM PC owners:* Call us about backing up your protected software with Copy II PC!

Circle 14 on Reader Service Card

# It's the same old Apple II.




For years, people have been trying to build a better Apple® II.

It finally happened.

Meet the Apple IIe, an impressive new version of a most impressive machine.

The "e" means enhanced. Which means a bundle of new features:

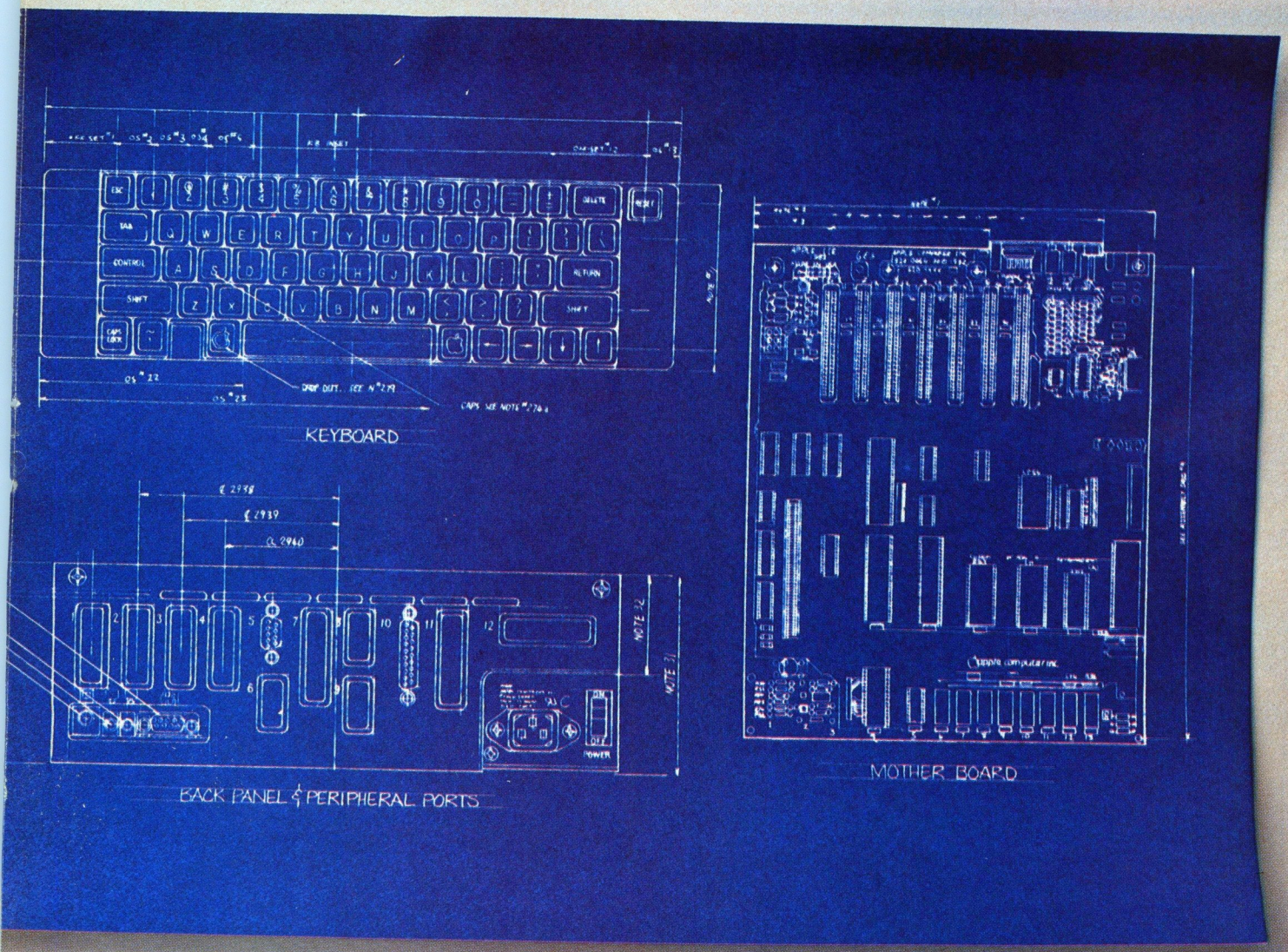
A standard memory of 64K (versus 48K) that's easily expandable. So you can create fatter files and crunch larger numbers of numbers.

A new, improved keyboard, with a complete set of ASCII standard characters. Plus full cursor controls, programmable function keys, and a rapid auto-repeat feature built into every key on the board.

Both upper and lower case characters. (And if you want to see more of them on the screen at one time, a low cost 80-column text card is available.)

Improved peripheral ports. Which make it a lot easier to connect and disconnect game controllers, printers and all those other wonderful things that go with an Apple Personal Computer.

# Except for the front, back and inside.




Self-diagnostics. That's a special feature that makes it easy to give your computer a thorough check-up.

Plus an even more reliable design. Achieved by reducing the number of components—which is to say, the number of things that could go wrong.

And bear in mind, the IIe still has all those other virtues that made the Apple II so very popular. Including access to more accessories, peripheral devices and software than any other personal computer you can buy.

So visit any of our over 1300 authorized dealers, and see the newest Apple for yourself.

Like the original, it's rather extraordinary. But then some things never change.

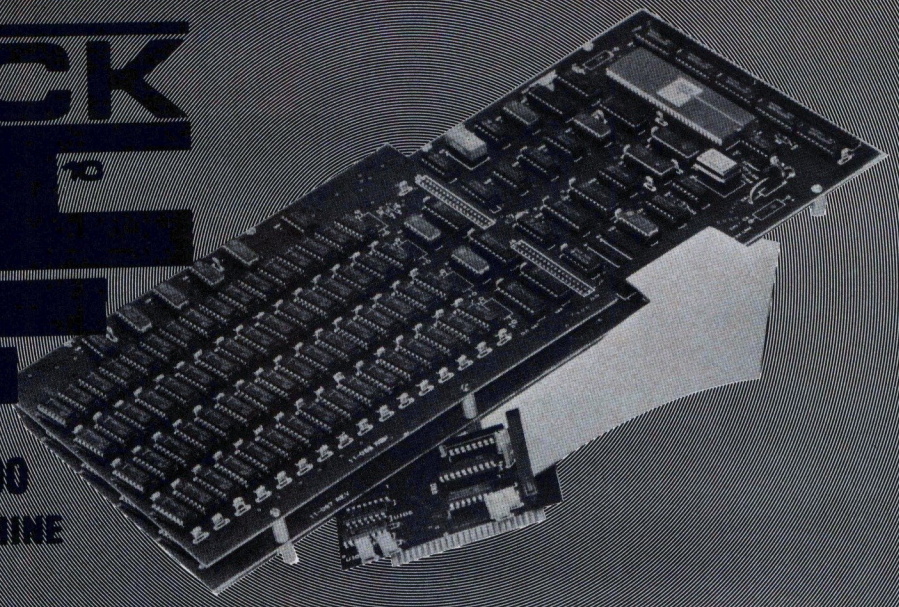
apple®

The most personal computer.

Call **(800) 538-9696** for the location of the authorized Apple dealer nearest you, or for information regarding corporate purchases through our National Account Program. In California **(800) 662-9238.** Or write Apple Computer Inc., Advertising and Promotion Dept., 20525 Mariani Ave., Cupertino, CA 95014. © 1983 Apple Computer Inc.

# DTACK

## The 68000 DREAM MACHINE



**THE DTACK GRANDE:**
Above is a photograph of the prototype for the DRAM version of our Apple compatible 68000 board. We have modestly named it the DTACK Grande because it has a **Grand(e)** amount of memory: a megabyte! That's called a *full gallon* here in California. (You can buy one with only 128K if you like.) This one has a 25MHz Xtal oscillator which we divide by two to generate the 12.5MHz clock for the 68000. DTACK is **not** grounded; there is one wait state. Refresh is performed in software, with a hardware assist so that the overhead is exactly the same for a megabyte as for 128K (4%). Thus the effective speed of this board is equivalent to 10MHz with no wait states.

Which makes our one megabyte 68000 exactly twice as fast as **another** one megabyte 68000 system that you Apple types may have heard of. The other one doesn't work with Apple II's, of course. Ours does.

Because the refresh is interrupt-driven, this board is inherently capable of multi-tasking so all you print spooler and type-ahead buffer fans should *love* this board. **We** think it will make a **dandy** RAMDISK. Oh, yes: it has a big, fast 68000 microprocessor (we almost forgot while we were admiring all that memory!).

**TRUTH IN ADVERTISING:**
Many of you have seen that ad with the tricycle falling apart which asserts that the iAPX 286 is faster than the 68000. Here are the facts:

1) The board pictured above, with one wait state, can perform a 32 bit add in **less than half a microsecond** and an 8MHz *can't.*

2) Intel is currently running ads offering 6MHz 286 boards, projecting delivery of 7.7MHz boards early next year. **What** 8MHz 286?

3) The 68000 has exactly seventeen more 32-bit registers than the 286. That's because the 286 doesn't have any.

4) Back to that tricycle ad: have you noticed the fine print that says the speed of the 68000 has been **"adjusted"**?

5) AMD and Intel like to compare against a slow 8MHz 68000, burdened down with a memory management chip for **multi-user** systems. We are offering 12.5MHz 68000s for **single-user** applications. BIG difference!

6) The 68000 can **linearly** and **directly** address up to 16 megabytes of RAM. The 286 **can't.** That's important when you have a megabyte of RAM!

However, since we believe in 'truth in advertising' ourselves, that prototype pictured above doesn't work yet. We have not yet programmed the PAL memory decode chips or the bootstrap PROMs. This ad is being written on 23 May '83, so things may have changed by the time you read this.

**THE 'STUFFER' BOARD:**
In our last ad we told you about a 'block DMA' interface we were developing. The production boards just walked in the door and we will be shipping that interface this month. It works with both the static and the dynamic RAM 68000 boards we make. (However, it was designed before the Apple IIe was available, so it is **not** compatible with the IIe.)

**SOFTWARE:**
All the stuff we mentioned in our previous ads is still available. We are well along the road developing HALGOL, a high speed BASIC-like language that runs at close to 68000 assembly language speeds - and that is **very** fast! Right now we are finishing up the BIOS. That stands for Basic I/O System. It turns the 6502 in the Apple into an I/O handler exclusively, and lets the 68000 take over and run things.

**SHOULD YOU BUY OUR BOARD?**
Our board is still not suitable for persons who just want to turn on their computer and run canned software. You **must** have some interest in doing some programming yourself, or you will not want to buy one of our boards.

We still provide **lots** of 68000 source code on unlocked, easily copyable disks. Three disks with demo programs and source code are shipped with each board.

Aside from that, we can only think of **a million reasons** why you might like to buy one of the boards pictured above.

**DIGITAL ACOUSTICS**
1415 E. McFadden, Ste. F
Santa Ana, CA 92705
(714) 835-4884

Apple, Applesoft and Apple II are trademarks of Apple Computer Company.

WHY YOU SHOULD INVEST IN A DATA BASE:

# CONFESSIONS OF A CHEAPSKATE

Alan D. and Valerie A. Floeter

WE'RE finally coming out front to admit it. We're full fledge cheapskates. When we bought our Apple five years ago, we got the 16K version. Our dealer told us we could get a terrific price of $270 ($300 list) for another 16K. We smiled, thanked him nicely and said that we weren't ready for any at that time. We went home and started checking ads. We found the best price was about $85, saving nearly $200 for installing them ourselves. Our next 16K we got later for an even better $65. Now-a-days $13 for 16K isn't even outrageous. (We're glad about that, because now there is little reason not to have a full 48K system. Authors can safely write programs for that without worrying about leaving too many out in the cold.)

Many of you are probably saying, "But buying your own memory doesn't make you a cheapskate." Well, that's not all we did. After working on our Apple a few months we needed some hardcopy capability. We picked up a used GE Terminet and then decided to work up our own interface. Printer cards are expensive, you know. We put a nifty one together for around $50. The most expensive part was the prototype board ($23).

But it's not only with hardware that we like to cut corners. We do a lot of our own software. We wrote our own assembler, disk utilities, some games, etc. Then a magazine published a music retrieval system program to keep track of album collections and we started to change some of our philosophies. We did something many of you might find surprising. We immediately wrote out a check to get the diskette offered by the publisher. We don't enjoy typing and hate looking for mistakes that we're not always sure are ours. Besides, there's no future in spending three hours typing in a program, but there is much more promise in spending three hours programming something original.

When the program arrived, we started modifying it for how we wanted to store our albums and tapes. We spent a lot of time custom tailoring it, and ended up with a good, useful program. (We never did find our bug in the sort function though.)

Once our albums were entered, we started thinking about a system to catalogue our books. It would be very similar to the music system, so we could probably modify that to produce a book retrieval system. However, this project was set aside for the time being.

Between Valerie's brother, Al's brother and ourselves, we subscribe to about 15 computer magazines. We were running into the problem of remembering where some particular article appeared and when an ad appeared for a magazine article retrieval system for about $40.

A pattern started to become obvious. If all we wanted were the three programs we mentioned, then that is all we would have to buy. But that was only the beginning. We could envision a computerized address book, family tree, household inventory and more. It wasn't going to be too cheap for us if we started spending $20 here and $40 here and $35 over there. Besides the necessity of having several programs to learn and maintain, just trying to modify them when possible for our own quirks was too much. We took a deep breath, admitted to ourselves that it's sometimes worth spending a little more money and started to do some studying.

We bought a data base management system (DBMS). Some of you may be a little confused about what a DBMS is. Simply put, it's a program to organize information into some form. You describe the form as well as the information. It's purpose is not to analyze, but merely organize. By the way, they do cost a tad bit more than a game.

How do we feel spending the money? We got a terrific deal!! (We don't necessarily mean from the dealer either.) We only had to determine which DBMS we wanted. We didn't have to investigate all the article cataloguers, all the address books, and all the genealogy programs. Secondly, we have only one program to learn and to learn well. Thirdly, we don't have to modify it since we set up the formats ourselves. Lastly, it's the only organizer we'll ever need. We don't have to buy or write an XXX-retrieval system when we think of a new application for our computer.

To give you some idea of how to go about using a data base program, start by sitting down and working up what information you want to store. As an example, let's look at a simple address book. Well, it's actually not "just" a simple address book, because we're also going to store birthday, anniversary and Christmas card information in it as well.

The pieces of information we have are each called fields. Some of our fields are:

**1 NAME**
**2 STREET**
**3 CITY**
**4 STATE**
**5 ZIPCODE**
**6 PHONE**
**7 ANNIVERSARY**
**8 HIS BIRTHDAY**
**9 HER BIRTHDAY**
**CHRISTMAS CARDS SENT IN:**
**10 1982**
**11 1983**
**12 1984**
**13 1985**
**14 1986**

You might also like to add fields for names and birthdays of children and type of acquaintance (relative, friend, co-worker, business, church member, computer club member, etc).

AVANT GARDE

Presents

More Magic!

**FORTRAN-like Applesoft enhancement for your Apple**

- *Amperfinesse* brings the power of such high level languages as Fortran and PL/1 to the Apple II Plus at an inexpensive price.
- Plus a complete set of editing commands!
- Call subroutines with arguments and by name!
- GOTOs by name!
- Formatted numeric output including '$' and '*' options!
- Input virtually any character string!
- Search part or all of an Applesoft program for a string!
- Substitute one string for another anywhere in a program!
- Renumber part or all of a program!
- Initialize a disk without DOS and add 10000 bytes additional storage!
- Add simple music and sounds to a program with easy to use music commands!
- Initialize the hi-res screen to any HCOLOR and set ROT, SCALE, and HCOLOR, all with a single command!
- Auto-line numbering mode!
- Move an Applesoft program almost anywhere in memory, even while the program is running!
- Redimension arrays
- and MORE!

NEW

from

AVANT GARDE

P.O. Box 30160/Eugene, OR 97403

(503) 345-3043

Circle 16 on Reader Service Card

# CONFESSIONS

The planning stage for the data base set up is very important and something you should think through slowly and thoroughly. Once you start entering data, consider your format cast in iron. Although some data base programs have a way to convert from one format to another, this is not universally true. So if at a later time you want to add a field, tough luck, Charley. One way to get around this is to always add two extra fields at the end just for extra stuff, future expansion.

Once you've decided what information you want to store, you have to think about what kind of data will be stored in each and how long it will be.

For instance, NAME will be alphanumeric (characters, either numbers, symbols or letters) and say up to 30 characters long. Make sure that length is enough. You wouldn't want names chopped off.

Some DBMS have special field types already set up, so for the BIRTHDAY and ANNIVERSARY fields, we might be able to just say that they are a date, and all the details are taken care of.

Once your field types and lengths are set up, you're in business. You can start entering information.

Of course, someday you'll want to use your computerized address book. That's why you went through all this trouble. What are some possible uses?

1) Birth and wedding announcements — Have your DBMS search for all your relatives and friends. (This is where a field for relationship is useful.)
2) Birthday and Anniversary cards — At the start of every month, look for everyone having a birthday or anniversary in that month.
3) Guests lists — Look through the people living in your area to give you a start on planning a party. Your DBMS can print out names and phone numbers or addresses automatically. (If you do a lot of entertaining, you might even want to have fields for the last date they were over, what was served and any special dietary restrictions they might have.)
4) Christmas cards — Look to see who was sent a card last year to start your Christmas card list.
5) Address change — Get a list of everyone you need to contact when you move to a new location or change phone numbers.
6) New products developments — Send all business associates information about new products.

Etc., etc., etc.

Several DBMS programs can print out mailing labels too, so once you have your list of people chosen you can have all their addresses printed on labels. We don't know if that's socially acceptable for Christmas cards and the like, but it certainly is fine for address changes and new product announcements.

Once you have all this information at your finger tips, we're sure you'll find ways of using it. And think, this is only the address book! You can still add your various other cataloguers.

By the way, a good thing to do before you enter in your data format is to think about how you intend to use the information. One field we did not put in is DATA ENTERED. This could be useful when compiling your Christmas card list. You could look for people you sent cards to before as well as any people you've added to your address book this year. Remember, it's important to really think about what information you'll want to save before you start entering information.

Our advise to others is to take a look at how you want to use your computer system. If you only want to store your stamp collection information, a DBMS might be an overkill. But if you do eventually hope to computerize much of your information, save yourself the money and time and start investing into a DBMS now. It'll save you plenty over the years.

# The Avant-Garde Programmer's Series:

## Better Than Magic!

### HI-RES ELECTRONIC DESIGN

Create and print electronic circuit plans. Keyboard selection and rotation of 98 different electronic components. Paddles or joysticks provide easy placement. **$29.95**

### HI-RES SECRETS

Complete Apple® graphics utility fills the needs of today's creative programmer. 263 pages of revealing documentation. Completely relocatable color or graphic, animation and sound routines. The most useful package on the market. **$125.00.**
**Demo available $10.00**

### HI-RES ARCHITECTURAL DESIGN

Plan and design individual rooms, complete floor plans and total buildings. 75 different floor plan shapes can be easily rotated and moved. Lengths, diagonals and angles are calculated on-screen. **$29.95**

### SUPER QUALITY EPSON HI-RES DUMP

Best quality Epson dump features true black copy. Mirror, negative, flip or rotated images available in three sizes. Automatic horizontal centering. **$25.00**

### HI-RES SECRETS GRAPHICS APPLICATIONS SYSTEMS

Step from Basic to better Basic programs, Basic to Assembly hi-res graphics. Create graphs, electronic and architectural designs, arcade and adventure games, more! Fastest color-fill; 300 colors/patterns. **$75.00**

### PAINT MASTER SCENE UTILITY

Allows line drawing, scene painting, scene editing, screen compression. Fastest color-fill routines anywhere. Perfect for adventure game creation or computer art. Over 300 colors/patterns. use creations in your own program. **$34.95**

### SUPER SHAPE DRAW AND ANIMATE

Draw in any direction using keyboard commands. Two types of animation, rotation, scale, background color, shape color and more. **$34.95**

### ACTION SOUNDS AND HI-RES SCROLLING

Machine language sounds, hi-res scrolling routines and Super-font program in one useful package. **$18.95**

## Why Better?

**Because There Are No Secrets!**

Most of these programs are unprotected or completely listable and may be used in all your creations, with no royalties required. They turn novices into professionals and professionals into absolute magicians!

Now Available from Your Local Software Dealer and by calling us directly at **(503) 345-3043**

**AVANT-GARDE CREATIONS, INC.**
**P.O. Box 30160 Eugene, OR 97403**

*ARE YOUR CREATIONS MARKETABLE? ARE YOU A QUALIFIED PROGRAMMER LOOKING FOR ASSIGNMENT? GIVE US A CALL.*

Circle 4 on Reader Service Card

# Hitch your Apple to a Star.

Apple, CP/M & IBM PC are registered trademarks of Apple Computer Inc., Digital Research Inc. & IBM Corp. respectively.

Now when you buy our best selling WordStar word processing software or InfoStar data base manager for your Apple II, II+ or IIe computer, we'll throw in a free CP/M board. (The one that gives you full implementation of WordStar in one board instead of three.)

With it, you'll be able to take full advantage of the advanced features that already made WordStar No. 1 on the IBM PC. And you can use InfoStar data base manager to enter, sort, and report information without programming in code.

To take us up on our offer, hurry down to your local computer store before August 31 and pick up WordStar or InfoStar.

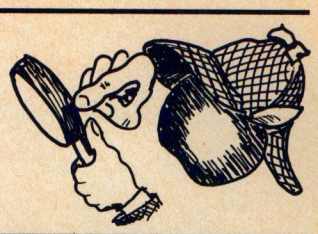
Either one will make your Apple shine.

Technical Data: Board Includes 6 MHz Z-80B Processor, 64K RAM, CP/M 2.2, 70 Column High Resolution Capability, Shift Key Modification Device, And Expansion Interface Connector.

MicroPro®
Software that means business ™

Circle 33 on Reader Service Card

# NORTHERN SPY



Rick Sutcliffe/Call —A.P.P.L.E. staff writer

**Rest of the News — Bad**

AS mentioned above, the initial debacle with the /// has caused the folks at Cupertino to become considerably more cautious. The seeming on-again, off-again hesitancy over the *IIe* led some people to wonder if they were being *too* careful. The deed is done, the vote taken and the verdict is in — the finding is guilty — and on three counts.

First, design. For little or no extra cost, the full 80 column capacity and possibly Z-80 capability could have been built into the main board. The former is being sold as part of an introductory package — but anyone wanting to upgrade later to the extra 64K would then have a surplus 80 column card. (Only one slot for this stuff, remember.) Then again, the Z-80, for its part, is the key to using the vast (albeit ridiculously overpriced) CP/M side of the market. In my opinion, every computer built today needs to have this capability. Putting a Z-80 on the main board would have been much less costly than buying a card, and would take up one less slot.

It also seems odd to me that a way was not found to make all eight connectors superslots. This could have been achieved simply by extending their length and placing a small edge-divider between the "old" and "new" portions of the slot. Then both the existing cards and supercards could be plugged into any slot. Having only one is going to be a problem, surely this could have been handled better.

There is, also, what I regard as a firmware bug, in that at 1200 baud input characters are lost. Apple is aware of this but does not plan a fix. This is unfortunate, for the days of 300 baud communications will have passed by next year.

There should be programmable function keys and a keypad. My preference would have been to see a variety of different optional detachable keyboards. One is a standard keyboard, another has a keypad and still another has function keys for special applications. In such a system, you buy the keyboard that you need. Just think what a decision like this would have done to the aftermarket.

Also, there is too much ROM, a leftover from the cassette days. (Surely those cassette I/O parts are also now an anachronism.) Optimal use is made of memory when ROM is minimized in favor of booting the operating system from mass storage as needed. This allows clever system's people more scope to tinker and improve — a process now widespread where DOS is concerned. Again, we must not forget that it is precisely such people to whom the success of the Apple is owed. Everything possible should be done to encourage them.

These are relatively small quibbles though, and I would not wish them to detract from what is an overall good design and very innovative work — even if it does not go quite far enough in some respects. The second bit of bad news is Bad News.

It concerns marketing. On the positive side, Apple has been protective of its dealers — running down the deep discounters, poor service fly-by-nighters and sharp (and even crooked) businessmen. For this, they deserve the thanks of the whole industry. After all, a strictly mail order industry could never survive the long haul, it would eventually cut its collective throat.

But it is my view, that at least in this country, Apple has not marketed aggressively enough, and that their sales managers seem stricken with near-fatal doses of caution — afraid to set high goals and hustle for them lest they fall a machine or two short of quota.

My first impression a month after the *IIe* introduction is that in the case of Apple Canada, this caution has produced a serious problem. Obviously, the market has been underestimated by a very wide margin. This has meant that no stores in British Columbia had any stock of the *IIe* or the old Apple during this first month. How long can a retailer survive with zero sales volume?

One local store sold 800 units last year and had 150 orders in the first three weeks after the *IIe* was announced. They had no sales, simply because they could not get the machines. Heads should roll over this — a sales manager is supposed to make sure things get sold, not to delay them by being too cautious and getting caught with no stock on hand. Officials at regional offices of Apple Canada would at first comment only in the vaguest of terms — I got the impression that they were really squirming under my persistent probing.

It gets worse. Now for the *bad news.* I began to suspect that the Western Canadian problem merely reflected ones that were system wide. A little digging brought the story that Apple had planned to divert another assembly line to the *IIe* in December, but that when sales of the ][ climbed from the 30,000 range to about 50,000 for that month, the switch became impossible.

This left the stockpile of the *IIe* at a mere 70,000 on introduction day, a figure Apple officials had evidently hoped would represent a six to eight week supply. However, even if all of these had been on dealer's shelves that first day, there would have been none left in the first three weeks. By that time, orders were piling up which Apple could not hope to fill from stock. In fact, one highly placed source does not even accept the 70,000 figure, insisting that about 36,200 RevA boards were made, and that no RevB boards could be expected until April. The Spy sticks to his guns however; RevB boards have already been sold even here.

—◉→

# *VistaDaVinci*
# GREAT INNOVATORS

15th century renaissance man, Leonardo Da Vinci, contributed an inexhaustible collection of inventions and ideas to solve the world's problems. These ideas were centuries ahead of their time. The studies on this page deal with experiments in manned flight.

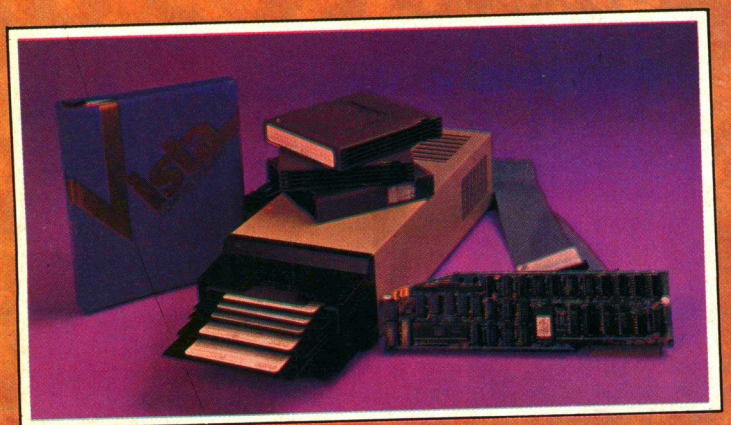
Like Leonardo, Vista Computer is answering many of today's complex computer storage problems. The Vista V1200 is a great solution to Apple II™ storage. Mass storage for your Apple II™ Computer has always been a problem. On one hand, there were the exotic, expensive hard disks with no cost efficient means of backup. On the other hand, the Apple floppy drive lacked the speed and storage demanded by today's professionals.

Vista's V1200 offers both at an incredibly attractive price. The removable VistaPak cartridges offer 6 Megebytes of removable storage each and can be backed up like a floppy.

Now hard disk storage and speed can be yours with the added capability of interchangeable media. The V1200 eliminates the worries of head crashes, drive alignments, lost data, or backup with a new application of field-proven floppy technology.

The VistaPak cartridges hold 6MB of formatted data each. The removable cartridge allows you to keep duplicates of your valuable data as well as to keep separate paks for your accounting, word processing, spread sheet and other applications. No other storage device offers more in flexibility and capability.

• Microprocessor controlled drive • DMA Controller • Removable Data Cartridges • CP/M, DOS & Pascal compatible • Quickcharge™, DOS enhancement included • Includes 1 VistaPak cartridge • Vista 120 Day Warranty



*Vista V1200*

™Apple II is a registered trademark of Apple Computer Co.

**Contact Your Local Vista Dealer or Call our Vista Hotlines.**

**Vista** COMPUTER COMPANY, INC.

1317 East Edinger / Santa Ana, CA 92705
(714) 953-0523 / (800) 854-8017

**DISTRIBUTORS / REPRESENTATIVES**

Western - Group 3 Wholesale
(213) 973-7844 (408) 732-1307

South Central - M.P. Systems
(214) 385-8885

Northeast - Computers & Peripherals Inc.
(315) 476-6664

Circle 27 on Reader Service Card

# NORTHERN SPY

What would happen? We recall something similar taking place at the time of the Apple /// introduction — what followed the non-deliveries was a wave of cancellations. In this instance, again there are going to be a lot of disappointed people who do not not get the computer they had ordered. A friend of mine, Howie by name, sold his ][ on the promise of a *IIe* in a week. A month later, he was experiencing acute hacker's withdrawal symptoms, and the prognosis was not at all good.

Anxious to get to the core of matters, I called Dave Killens, the General Manager of Apple Canada in Toronto, and outlined the acute supply problems as I saw them.

Spy: "So, have you any comment for the record?"

D.K.: "From a supply point of view, we are overwhelmed."

Spy: "What if a dealer gets into trouble because of this?"

D.K.: "We will supply as much support as we can during this difficult period."

Spy: "What about the figures I quoted — are they accurate?"

D.K.(chuckle): "No, I'm sorry, I can't comment on that, but I will admit that we have extinguished most of our reserves."

Spy: "Is the problem particularly bad in Canada, or is it system wide?"

D.K.: "It is system wide. Some areas do have more supply than others, but Canada is treated as part of the domestic market and isn't really in a different position than any other section of the North American market."

Spy: "What about Vancouver; why are there no machines at all out here?"

D.K.: "Well, Vancouver is a very aware market and the demand there is bound to be high. I'm sure if you check back with the stores, you will find that the situation is changing daily. We are shipping product daily to the West Coast."

Spy: "When do you expect to be caught up?"

D.K.: "In no more than three to five weeks."

Spy: "By mid-March then?"

D.K.: "Yes."

Spy: "Don't you think three months is more realistic?"

D.K.: "No, I think we can do it earlier than that."

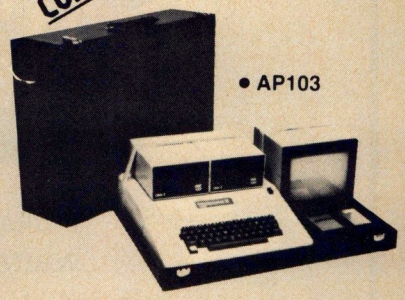
We exchanged other pleasantries, but that was the gist of it. They are happy that we love them so much, more than a little worried about their ability to respond, but ready to put an optimistic face on the whole thing.

Let's face it. The Apple is the best (read most versatile) micro on the market. As the December sales figures indicate, even the now obsolete ][ is still a runaway winner. The *IIe* represents a further increase in this versatility and so the pent up demand has simply exploded. Until things calm down a bit, Apple is going to suffer a bit of a tarnished reputation, but with problems like these, maybe nobody cares.

In any case, the stockpile would have to have been closer to 200,000 to cover the eight to ten week startup time — a figure they could never have achieved. It may be summer though before things are flowing smoothly again. Indeed, it will probably be summer by the time you read this, and the problem long since forgotten. Right now, the marketing situation is far from ideal.

Enough gloom, however. Let's look on the positive side. Such a smashing success may indicate that we are now over the threshold of that runaway growth which many of us have predicted for the industry. I think the industries total unit sales in this recovery year could equal those of all previous years combined, and that a further doubling could take place in 1984. There can be no doubt now — we are where the action is. The revolution is on and there is no stopping it. Computers are about to become standard household items, and we early pioneers will be able to look back and say, "I remember when..."


Computer Case Company



• AP103

Attache-style cases for carrying and protecting your complete computer set-up. Accommodates equipment in a fully operational configuration. Never a need to remove equipment from case. Simply remove lid, connect power, and operate.

| | | |
|---|---|---|
| AP101 | Apple II with Single Drive | $109 |
| AP102 | Apple II with Two Disk Drives | 119 |
| AP103 | Apple II, 9 Inch Monitor & Two Drives | 129 |
| AP104 | Apple III, Two Drives & Silentype Printer | 139 |
| AP105 | 13" Monitor with Accessories | 99 |
| AP106 | AMDEK Color Monitor | 119 |
| RS201 | TRS-80 Model I, Expansion Unit & Drives | 109 |
| RS204 | TRS-80 Model III | 129 |
| AT301 | ATARI Computers with Peripherals | 109 |
| P402 | Centronics 730/737 & Radio Shack Printer | 89 |
| P403 | Epson MX70/80 or Microline 82A | 89 |
| P404 | Epson MX100 Printer | 99 |
| P405 | IDS 560 or Prism 132 Printer | 109 |
| P406 | Starwriter/Printmaster F-10 Printer | 119 |
| P407 | Okidata Microline 83A or 84 Printer | 99 |
| P408 | Prowriter 2 Printer | 99 |
| P409 | Prowriter (Apple Dot Matrix) Printer | 89 |
| IB501 | IBM Personal Computer | 129 |
| IB502 | IBM Monitor | 99 |
| HP601 | HP41 with Accessories | 99 |
| CM703 | Commodore Model 64 with Drives | 119 |
| CM704 | Commodore Model 64 with Dataset | 109 |
| NS010 | North Star Advantage | 139 |
| CC80 | Matching Attache Case (5") | 85 |
| CC90 | Matching Attache Case (3") | 75 |
| CC91 | Matching Accessory Case | 95 |
| CC92 | 5.25" Diskette Case | 49 |

Computer Case Company

5650 Indian Mound Court
Columbus, Ohio 43213
(614) 868-9464

CALL TOLL FREE
800-848-7548

Circle 7 on Reader Service Card

# StarLogic Announces Savings on Apple II Compatible Drives

Includes drive, cable, cabinet and standard warranty which includes 90 days parts and labor

| | |
|---|---|
| 5¼" standard disk drive | $205.00 |
| ThinLine half-height disk drive | $185.00 |
| Dual ThinLine drives | $335.00 |

*(Also compatible with Franklin ACE)*

**TELEPHONE ORDERS ONLY**
**MASTERCARD, VISA, CASHIER'S CHECK COD ORDERS ACCEPTED**
**(213) 883-0587**

# StarLogic

Circle 25 on Reader Service Card

Apple is a registered trademark of Apple Computer, Inc.

ThinLine is a registered trademark of Tandon Corporation

# THE ULTIMATE APPLE® DISK UTILITIES

## THE INSPECTOR™ AND WATSON™

"The Inspector is one of the most valuable additions I have made to my Apple. I use it almost daily in repairing blown disks, editing files, and many other uses. There are other disk access utilities on the market, but almost all require a separate program to be run. The Inspector is always available and easily accessed when in ROM. Likewise, if the disk version is used, it is always available if you boot the modified DOS. The documentation is excellent, and the product is superb. Rating AA. (Disk $59.95)
Watson greatly expands the potential of the Inspector. The utilities of Watson are available in most cases through software, but from a variety of different sources. Watson combines them all together in a convenient and powerful package that is always available. Since Watson must be used in conjunction with the Inspector, the package as a whole must also be evaluated. Consequently, since the routines provided by both the Inspector and Watson are so useful and the documentation clear and well done, the overall package must be considered as outstanding. Rating AA. (Disk $49.95)"

Peelings II™
THE MAGAZINE OF APPLE SOFTWARE AND HARDWARE EVALUATION

MONTY LEE, VOLUME 4, NUMBER 2, 1983

OMEGA MICROWARE, INC.™

222 So. Riverside Plaza, Chicago, IL 60606, 312-648-4844
MasterCard and Visa holders order **Toll-free 1-800-835-2246**

Apple is a registered trademark of Apple Computer, Inc. The Inspector, Watson and Omega MicroWare are trademarks of Omega MicroWare, Inc. © 1983 Omega MicroWare, Inc.

Circle 23 on Reader Service Card

## EPSON PRINTER POWER FROM APPLEWRITER ][

Unlike many, more expensive word processors, Applewriter ][ is able to take advantage of all that Epson power and with **GLOSSARYONE©** it's **simple**! Using **single, easy to remember keystrokes,** you can

MX ⟷ FX

BACKSPACE TO e.g. MAKE 7 OR 8
COMPRESS WIDTH
DOUBLE STRIKE
EMPHASIZE
DOUBLE STRIKE AND EMPHASIZE
*ITALICIZE*
PRINT UNIDIRECTIONALLY
SUPERSCRIPT AND SUBSCRIPT
SOLID UNDERLINE
BROKEN UNDERLINE
DOUBLE WIDTH
COMPRESS DOUBLE WIDTH OR
COMBINE $^{55}_{24}Cr \rightarrow {}^{55}_{25}Mn + {}_{-1}^{0}e + \nu_E$
& INSERT SPECIAL CHARACTERS

| ^ ~ @ ' { } [ ] _

Do all this and **more!** So order now and **stop memorizing control codes!** For disk and simple instructions send 17.95 (FX 19.95) plus 1.50 postage & handling to:

**Mike Iversen**
**#1 Jo-lin Ct., El Sobrante, CA 94803**

●

**Compatible w/][+, FX, MX-80/100. Specify computer, printer, interface, fewer features w/o Graftrax.**

Circle 20 on Reader Service Card

**DOBERMAN©**

**ATTENTION APPLE™ SOFTWARE DEVELOPERS**

# Put the bite on Software THEFT!

**PROTECTS YOUR SOFTWARE IN 3 WAYS:**
**1. The Software Component**
**2. A Hardware "LOCK" that fits into your Games I/O**
**3. Our Security Database**

**• WON'T IMPEDE USE OF JOYSTICK OR PADDLES. • COMPATIBLE WITH DOS 3.3. • OPERATES WITH ALL TURNKEY PROGRAMS. • PROTECTED DISKS WON'T BOOT WITHOUT A LOCK.**

**ONLY $149.00**

**Order from SRC by mail or phone (604) 477-7246. We accept VISA, cash or COD orders.**

SR software research corporation

**DISCOVERY PARK**
**UNIVERSITY OF VICTORIA**
**P.O. BOX 1700, VICTORIA, B.C. CANADA**
**V8W 2Y2**

Circle 43 on Reader Service Card



# The Executive Secretary™

- **Document editor**
- **Powerful printing program**
- **Flexible database**
- **Alphabetical indexer for books and theses**
- **Mail list merge for business letters**
- **Pre-printed forms manager**
- **Electronic mail**

**INTEGRATED** means that all of the above is included in the $250 suggested retail price, and that every part of the package follows the same rules. There's no need to learn one set of keypresses for the editor and a separate set of rules for the database.

**RELIABLE** means that thousands of users have logged more than 1,000,000 hours of use and that we back you up after the sale with a hotline number printed right on the program disk.

## INTEGRATED, RELIABLE WORD PROCESSING

**THE EDITOR:** Supports a wide variety of 80 column boards, or runs in 40 column mode on older Apples. A coupon for a free Revision 7 LCA is included.

**THE PRINTER:** You can embed format commands in your document and let our printer program handle all of your layout concerns. More than 40 embedded commands allow you to control every aspect of layout, including pagination, binding margins, flexible page headers, volume-length documents, outline indentation, and far more. You can employ electronic shorthand so that commonly used phrases are represented by three or fewer keystrokes. And if your printer is capable of it, you can do justification by incremental spacing, boldface, and more.

**ELECTRONIC CARD FILE:** With its ease of use, its multiple alphabetic and numeric sorts, its report options that include totals and subtotals, it is superior to many databases costing well over $100.00.

**MAIL LIST MERGE:** You can write documents in the editor that call for information from the Electronic Card File and merge the information to produce customized forms and form letters. Conditional printing allows you to skip words, blocks of text, or entire letters based on your criteria. And you can also draw information from other popular databases.

**ALPHABETICAL INDEXER:** This unique tool allows you to specify page numbers for each occurrence of a term and to produce a properly formatted alphabetical index of those terms.

**PRE-PRINTED FORMS MANAGER:** Use a sequence of special embedded commands to define the row and column positions of the blanks on pre-printed forms. Our template helps you. Then use mail-list merging to combine information from your database with your pre-printed forms.

**ELECTRONIC MAIL:** With a Hayes Micromodem you can transfer your documents to another computer—or to your local typesetter for printing.

**ORDER BY PHONE**

**(612) 929-7104**

Available at your local dealer.

SOF/SYS, INC.

**4306 Upton Ave. So. • Mpls., MN 55410**

Circle 42 on Reader Service Card

FOR YOUR **APPLE****

# IIe** 64K 80 COL CARD $99 *

Expand your IIe** with 80 COLUMNS and 64K MEMORY.

# E-Z CARD $60 *

Uses Z80A CPU (NEEDED FOR WORDSTAR**,D BASE II**, MULTIPLAN** AND OTHER CPM** PROGRAMS)
Software not provided.

# WISHCARD $50 *

For making backup's of most of your UNCOPYABLE PROGRAM DISK
Utility software included.

*ADD $30.00 IF YOU WANT A READY TO USE UNIT

ALL cards come in KIT form and have ALL REQUIRED IC's, Printed Circuit Board, and Assembly Instructions.

GUARANTEE IF YOU ARE UNABLE TO GET YOUR KIT TO WORK, for a fee of $30.00 plus $2.50 postage and handling (for socketed boards only, not provided), we will correct any errors in soldering and or blown chips, and mail your card back ready to use.

Orbital Systems, Inc.

**ORBITAL SYSTEMS INC.**
**P.O. BOX 5277 MESA, ARIZONA 85203**

FOR ORDER PLACING ONLY 1-800-221-9280 EXT. 990-A TOLL FREE
**ARIZONA RESIDENTS** CALL COLLECT FOR PLACING ORDERS 602-830-6457
9 A.M TO 3 P.M MONDAY THRU FRIDAY

MASTER CHARGE AND VISA ACCEPTED
Arizona residents add 5% for sales tax

**CPM trademark Digital Research
**Multiplan trademark of Microsoft
**D Base II trademark of Ashton Tate
**Apple is the trademark of Apple Computer Inc.
**Wordstar is a trademark of Micro Pro Inc.

Circle 41 on Reader Service Card


# Why Your Apple Needs DAVID-DOS™

## Your Apple is easier to use and runs much faster with this new, licensed by Apple, DOS 3.3 update.

DAVID-DOS (rhymes with moss), is rated AA, (top of its class), by the highly respected software review magazine PEELINGS II.

### Novices and Pros

DAVID-DOS is licensed by programmers for inclusion in the software they sell. 30 out of 60 bought it on the spot when DAVID-DOS was demonstrated at the Original Apple Corps, UCLA. DAVID-DOS receives applause from Apple novices. That's why you need DAVID-DOS.

### What's Going On

Every Apple II/IIe boots up with DOS 3.3 software.* DOS 3.3 is right there on the first three tracks of all your program disks. Your Apple is supervised constantly by DOS 3.3.

### Easier and 5 Times Faster

Our Installation Program goes in and makes specific permanant improvements to DOS 3.3 on all your disks in a few seconds. (The programs on your disks are not touched). From then on your programs load up to 5 times faster. And you have new features that make your Apple easier to use.

*Exceptions are Pascal & CPM Operating Systems.

Apple II and Applesoft are trademarks of Apple Computer inc.

### 100 Sectors in 7 Seconds

Speed Load Applesoft, Integer & Binary 100 sector programs in 7 seconds. Tload Random and Sequential Text Files at the same speed with a simple command.

### Automatic Card Support

Automatically supports an Integer or Applesoft Rom Card in Any slot (without configuring). Single key stroke Catalog and Catalog Abort. Shows Free Sectors Left on each Catalog.

### Nine New DOS Commands

1. TLOAD speeds loads all Text Files.
2. TLIST lists all Random/Sequential Text Files.
3. DUMP Binary/Ascii to screen or printer.
4. DISA dissembles Binary to screen/printer.
5. AL prints program Address & Length.
6. / Single keystroke, second Catalog command.
7. HIDOS moves DOS to the Language Card.
8. FIND hex group in 64K memory in 3 seconds.
9. DATE prints out. Use with Mtn. clock card. Commands 8 & 9 in Hidos only.

### 10K More Memory

These nine commands operate identical to existing DOS commands. Use A or A$ for address and L or L$ for length. Enter new commands on the Keyboard and use them in Basic programs with the familiar D$. Use HIDOS in Hello program for turnkey startup, adding 10K free memory.

### Variable Speed Scrolling

TLIST, DUMP, and DISA Features are:

1. Print with PR#.
2. Key operated variable speed control.
3. Instant pause with Space Bar.
4. Exit anytime with Return Key.

### Compatible

All DOS entry addresses have been preserved. DOS is Same length and compatible with most software. David-Dos is copyable and creates fully copyable updated disks. Init areas were used for David-Dos. Works with all Apple IIs including IIe 80 Col. Requires 48K. Complete documentation for screen or printing and many utilities are on the disk.

California residents add 6½% sales tax. **$39.95**

Foreign add $2.00.

**DAVID DATA**™

**To Order: Send Check To**
12021 WILSHIRE BLVD., SUITE 212A
LOS ANGELES, CA 90025 (213) 478-7865

Circle 9 on Reader Service Card

# PARKINSON'S LAW

Robert A. Greenwald

PARKINSON'S Law is one of the incontrovertible truths of the 20th century. Its original format was the observation that "Work expands to fit the hands available to do it." For example, if three secretaries are fully busy such that a fourth must be hired, she too will soon be fully occupied even if the office workload does not increase. Parkinson's Law may be stated generically as "Need expands to fit availability." That is why your office is still overcrowded even after you move to larger quarters, and that's why the new enlarged parking lot is full the day after it opens; objects, like work, expand to fit the space available to them. It is my thesis that the uses to which we will put the small computer will be the testing ground for Parkinson's Law for the 1980s.

I love my Apple dearly despite its handicaps, and my family uses it at least 20 hours per week (a good workout for a residential machine). We do lots of word processing, play games, manipulate data bases, learn programming, study math, call The Source, and just fool around. My 13 year old daughter and I have each turned out hundreds of pages of manuscripts, letters, and what have you. My 11 year old has killed millions of space creatures, and my eight year old always gets her spelling words in proper alphabetical order. We've gotten our money's worth in spades.

But how are things different now than they were in July, 1980, the month before I entered the computer age? Didn't the kids have homework then? Wasn't I still churning out manuscripts and grant applications in the office? Weren't the kids fully occupied with board games, roller skating, and colored markers?

Where's that little notebook that I bought to record the numbers of the kids' bank accounts? It only cost 89 cents, but I could enter new data, edit old data, or delete a record in a flash using an old word processing device with a point at one end and a chunk of pink rubber on the other. That notebook had none of the elegance of my $300 data base manager connected to the $800 printer, but it was certainly fast and cheap.

The software vendors are blitzing us with a torrent of new programs. We're being exhorted to use our computers to balance the checkbook, create customized shopping lists, conjure up gourmet meals from a list of food on hand, and keep track of the kids' birthday party invitations. But no computer can balance the checkbook if my wife forgets to enter the name of the payee and the amount, old envelopes are usually lying around conveniently when you reach for the oregano and find the cupboard bare, and no software can convert leftover meatloaf into Beef Wellington.

Weren't we doing those things quite well before the small computer came to lodge in the basement? Programmers from coast to coast are rushing to convert all our daily activities into 6502 or Z80 machine code. Next month I expect an ad for MilkStar, a menu-driven, machine language software package with user definable macros; all you do is insert the program disk in drive 1, put your previously customized data disk in drive 2 (containing family information, dietary habits, etc), boot the system, and with just a few keystrokes, the trusty printer will crank out "Please leave 2 quarts!"

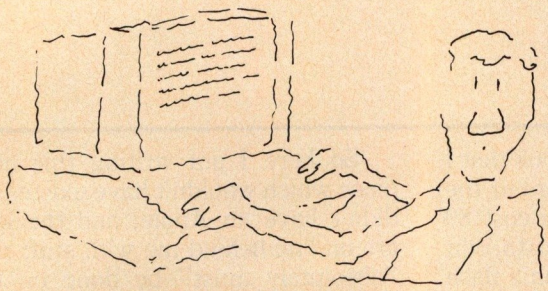
So here I am writing this little piece which wouldn't have existed if I didn't have an Apple, and the kids are on line behind me with stuff that "absolutely must" be done on the computer. Technology has a way of invading our lives to a degree which we could not even imagine three years ago. Anyone who doubts the validity of Parkinson's Law vis-a-vis technology has just to purchase a microwave oven; we've had ours only a month, but I absolutely don't understand how we ever survived without it.

**RS232 SERIAL**

AT LAST an APPLE® serial card that does it all! Communicate with a Modem, Remote terminal or Teletype. Just flip a switch and have letter quality serial printer protocol. BEST of all, only $44.95/kit, $59.95/assm. (Add $2.00 for shipping) Included is a RS-232 type connector & a comprehensive instruction manual. We also include an extended 6 month warranty and a terminal emulation program. Most orders shipped 48 hours after receipt*.

**B & D ELECTRONICS:**
Keeping the cost of your Apple® Byte size.
Send Check, Money Order* or COD* to:

**B & D ELECTRONICS**
**P.O. Box 3651**
**Lawrence, Ks. 66044**
**(913)-841-4182**
Circle 5 on Reader Service Card



# Get a Grip on Machine Language.

## The Visible Computer: 6502

The transition from Basic to machine language is a big step. Sometimes too big.

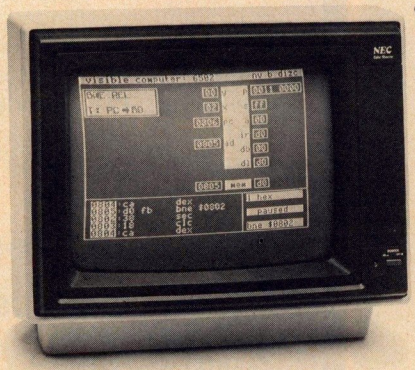
Now there's a way to cut the problem down to size.

The Visible Computer: 6502 is an integrated system for learning machine language programming. It features an animated simulation of the 6502 microprocessor that lets you see with your own eyes what machine language is all about. You'll see how instructions are executed, not just the result. There's a hand-holding mode that traps the kind of mistakes beginning machine language programmers are apt to make. And an expert mode, with more than twenty commands and functions that make it a powerful debugger for your machine language programs.

The 140 page manual is a hard-working tutorial on the fundamental concepts of machine language. You'll learn "hands-on-keyboard" as you work your way through thirty progressively more complex demonstration programs stored on disk.

The Visible Computer: 6502 is available for the Apple II Plus (or IIe) for $49.95. If your dealer doesn't have it, you can order directly from Software Masters, 3330 Hillcroft #BB, Houston, Texas 77057, or call (713) 266-5771. Please include $3.00 shipping. Bank cards accepted.

*The Visible Computer lets you see into a 6502 as it executes programs*



**Software Masters™**

Circle 13 on Reader Service Card

# Laing Electronics

**10382 STANFORD AVENUE, SUITE E-203**
**GARDEN GROVE, CALIFORNIA 92640**
**PHONE (714) 534-4216**

## MICROSOFT 16K CARD $69.00

### ★ HARDWARE FOR THE APPLE II ★

| | LIST | YOUR COST |
|---|---|---|
| HAYES MICROMODEM II | 379.00 | 263.00 |
| HAYES SMARTMODEM (RS-232) | 279.00 | 199.00 |
| NOVATION APPLE CAT II | 389.00 | 268.00 |
| MICROSOFT Z-80 SOFTCARD CP/M | 395.00 | 219.00 |
| VIDEX VIDEOTERM CARD - 80 COL. | 345.00 | 225.00 |
| WIZARD 80 COLUMN CARD | 249.00 | 149.00 |
| WIZARD 16K RAM CARD | 95.00 | 64.00 |
| WIZARD BUFFERED PRINTER INTERFACE (16K BUFF + GRAPHICS, OKI, EPSON, NEC, OR ANADEX) | 179.00 | 129.00 |
| APLI-CARD-6 mhz [Z-80 CPM] | 375.00 | 279.00 |
| NEC HI-RES GREEN MONITOR (JB1201) | 285.00 | 153.00 |
| MICRO-SCI A2 APPLE COMPATIBLE DISK DRIVE W/O CONTROLLER | 395.00 | 249.00 |
| MICRO-SCI A2 DRIVE WITH CONTROLLER | 495.00 | 309.00 |
| OKIDATA MICROLINE 83A PRINTER | 899.00 | 665.00 |
| NEC PC-8023A PRINTER | 695.00 | 450.00 |
| KENSINGTON SYSTEM SAVER FAN | 89.95 | 65.00 |
| GIBSON LIGHT PEN / LPS II (PENTRAK) | 345.00 | 239.00 |

### ★ VERBATIM DISKS ★

| | | |
|---|---|---|
| 100 DATALIFE 5¼'' 40 TRACK | 450.00 | 253.00 |
| 50 DATALIFE 5¼'' 40 TRACK | 225.00 | 132.00 |

### ★ SOFTWARE FOR THE APPLE II ★

| | | |
|---|---|---|
| PFS: FILE (SOFTWARE PUB.) | 125.00 | 76.00 |
| PFS: REPORT (SOFTWARE PUB.) | 125.00 | 76.00 |
| PFS: GRAPH (SOFTWARE PUB.) | 125.00 | 76.00 |
| DB MASTER (STONEWARE) | 229.00 | 147.00 |
| DB UTILITY PACK (STONEWARE) | 99.00 | 64.00 |
| DB UTILITY PACK II (STONEWARE) | 99.00 | 64.00 |
| THE HOME ACCOUNT (CONTINENTAL) | 74.95 | 47.00 |
| VISICALC 3.3 (VISI CORP) | 250.00 | 169.00 |
| MULTIPLAN (MICROSOFT CP/M) | 275.00 | 167.00 |
| MULTIPLAN (MICROSOFT DOS3.3) | 275.00 | 167.00 |
| WORD STAR (MICRO PRO CP/M) | 495.00 | 299.00 |
| SCREEN WRITER II (ON-LINE) | 129.95 | 79.00 |
| WORD HANDLER (SILICON VALLEY) | 199.00 | 124.00 |
| FORTRAN-80 (MICROSOFT CP/M) | 195.00 | 125.00 |
| ASCII EXPRESS PRO. (SOUTHWESTERN DATA) | 129.95 | 85.00 |
| Z-TERM PRO (SOUTHWESTERN DATA) | 149.95 | 98.00 |
| TRANSEND I (SSM) | 89.00 | 61.00 |
| DATA CAPTURE 4.0 (REG. VER.) | 64.95 | 42.00 |
| DATA CAPTURE 4.0/80 (VIDEX VER.) | 89.95 | 56.00 |
| WIZARDRY (SIR-TECH) | 49.95 | 33.00 |
| CASTLE WOLFENSTEIN (MUSE) | 29.95 | 19.00 |
| DEADLINE (INFOCOM) | 49.95 | 31.00 |

*ACCEPTED PAYMENT - PERSONAL CHECK or MONEY ORDER. NO CREDIT CARDS.*
*If Personal Check, Allow 10 BANKING DAYS for CLEARANCE.*
*Prices and specifications subject to change without notice.*
*Unless otherwise noted, ALL PRICES are PLUS SHIPPING.*
*SHIPPING & HANDLING — ADD $5.00 UPS SURFACE (DISK DRIVES $7.50 — MONITORS $10.00 — PRINTERS $15.00).*
*California residents add 6% Sales Tax.*

Circle 12 on Reader Service Card

# A.P.P.L.E. DOCTOR

Bruce Field

**Question:**

*Does anyone know whether the computer magazines ever check the programs they print from contributing authors? My success rate from reproducing programs which look promising runs about 50%, and that's after I debug the things, check for typing errors, etc.*

**Answer:**

You aren't going to like this, but it has been my experience that typing errors made when copying the program into the computer are the most likely sources of error. Sure, mistakes happen when listings are printed in magazines but they are often obvious such as missing or redundant lines. Also, you might check to make sure you have all of the program. Is it continued on another page? Does it have a machine language routine that also needs to be typed in? Shape table? Does an initialization program need to be run? Is it intended to be a real program or a program fragment to be included in another program?

**Question:**

*In pre-printed programs I frequently see a series of line numbers just prior to a segment of the program, e.g. a subroutine, which contain REM statements. The order in which these are placed intrigues me. Instead of one simple REM statement, we see something like:*

*1497:*
*1498 REM (statement)*
*1499:*
*1500 Subroutine begins here.*

*Whatever is the purpose of the colon alone? We are taught that the fewer line numbers we have, the faster the program will run.*

**Answer:**

The colons are added just to make the REM statement stand out visually from the rest of the program listing. When executed they do nothing. They do make the program run slightly slower; however the author apparently felt making the listing easier to read was more important than speed. Of course there are many programs available that will remove the REMs from an Applesoft program if you want it to run faster.

**Question:**

*I've been using my TV for a monitor now for almost two years, and until I got my word processor (which uses the graphics screen), I never missed having a professional monitor. Now, I tire of seeing blobs of green and purple on letters such as "m" and "w," and feel it is time to purchase a monitor. I know I want a color monitor, which ones are appropriate for the Apple?*

**Answer:**

Color monitors fall into two general classes, NSTC compatible composite video types, and RGB monitors. The Apple is designed to work with NSTC type monitors. The RGB monitors provide better resolution but they are very expensive (over $1000) and can not be used with the Apple except with special video boards. A color monitor will not solve your green and purple blob problem however, the blobs will just be a little better defined. One thing you can do (with your TV or a color monitor) is to turn the color intensity down; now the blobs will be little white blobs, which may not be as annoying. The best solution I think is to keep your color TV and buy a black and white (or green or orange) monitor. These are available for less than $100 and provide much better resolution than any NSTC color monitor. Then you can use the B&W monitor to produce sharp characters for word processing, and use the TV for playing games. They can both be connected to the Apple at the same time.

**Question:**

*What is the best disk copying program? And what about these new programs that are now being advertised such as Wildcard and Crack-Shot?*

**Answer:**

Sorry, I don't feel qualified to recommend software or hardware products. I do have one comment though. Disk copying programs are intended to make backup copies of software that cannot be copied using normal methods, i.e. they are "copy protected" and cannot be copied using Apple's COPYA program. These disk copier or nibble copier programs produce another copy protected copy. If you are interested in modifying the program this isn't of much use. Wildcard and Crack-Shot (and others) are hardware cards that plug into the expansion slots in the Apple and allow you to save what is in memory onto a standard Apple DOS diskette. The disadvantage of this method is that programs that load data or other program segments from disk while the program is running may be hard or impossible to copy.

**Question:**

*Is there any way to have the Pascal system work files on another disk besides the boot disk, i.e. on a disk in drive 2?*

**Answer:**

Basically (pun intended) no. The SYSTEM.APPLE could be moved to another disk drive but SYSTEM.PASCAL must reside on the boot disk.

**Question:**

*I seem to recall someone telling me that there is a simple way to make deleted files show up in a catalog. Do you know what it is?*

**Answer:**

You bet. Do a POKE 44505,234 and POKE 44506,234 and then do a disk CATALOG. The deleted files will show an extraneous character at the extreme right side of the screen which can be ignored. To return to the normal mode, POKE 44505,48 and POKE 44506,74.

**Question:**

*I'm using Applewriter II and want to change the font on my printer in the middle of my text. To do this I have to be able to send an ESC character to the printer. My Applewriter manual says to type [Ctrl-V] to enter control characters, but whenever I type [Ctrl-V] and then ESC it just puts me into upper case mode. How can I do this?*

**Answer:**

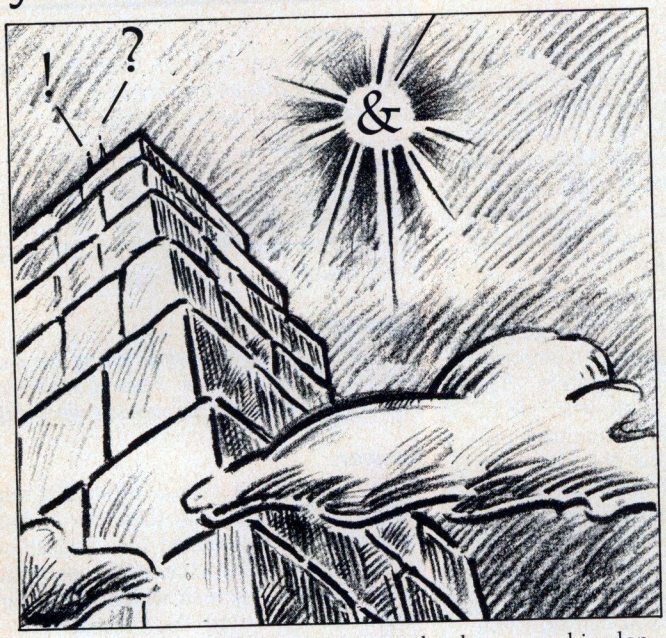
You have to type ESC three times after typing [Ctrl-V]. The first time it puts you in upper case mode, the second time it puts you in the cursor movement mode, and the third time it actually enters it into the text.

**Question:**

*I have an Apple II Plus and an NEC 8023 A/C printer and Grappler + interface. All works well except my Apple II Business Graphics program. I have not been able to print the graphics on the printer. I have tried a High-Res dump program that works well with Apple Plot, but it will not work with the Business Graphics.*

— →

# Trapped by the language? They found out in Babel what happens when your language won't do what you want it to.




With AMPER-MAGIC™ there's no need to know machine language to benefit from its power.

To your Applesoft™ programs you can attach, finished machine language routines (referenced by name, not by address) in seconds. No separate BLOADing. And with AMPER-MAGIC commands, you can pass variables back and forth directly, just as with built-in Applesoft commands.

So, name your routine, perform the append procedure, and AMPER-MAGIC takes over — machine language speed where it counts: in *your* programs. Even your commercial programs.

AMPER-MAGIC COMMAND LIBRARIES™ gives you access to hundreds of relocatable machine language routines, including those from magazines and other libraries, and - most notably - those from AMPER-MAGIC itself, which has over fifty routines of its own in two volumes, with more to come.

**Imagine!**
Only $75.00 for the original AMPER-MAGIC by Bob Nacon
Only $35.00 for AMPER-MAGIC COMMAND LIBRARY™, Volume 2

**Plus shipping. MC and Visa accepted.**

## Amper-Magic™

See your dealer or contact us.
**Anthro-Digital. 103 Bartlett Avenue, Pittsfield, MA 01201**
**Telephone (413) 448-8278, Telex 467622**
*"The Company That Interfaces People and Computers"*

For those of you who would like AMPER-Magic's routines in your own programs, just ask for Anthro-Digital's no cost licensing policy.

AMPER-MAGIC and AMPER-MAGIC COMMAND LIBRARY™, are trademarks of Anthro-Digital, Inc.
Applesoft is a trademark of Apple Computers, Inc.

**Also available from Anthro-Digital: Versacalc (several versions), Visicalc Formatting Aids, The Executive Secretary, The Personal Secretary, and Executive Speller, Hebrew II and Hebrew II Plus, S-C Macro Assembler, QuickTrace, Amper-Magic, The Rental Manager, F.A.R.M. accounting packages, The Performance Manager, Omniscan VideoDisc interface, and Flipper.** **DEALERS INVITED**

Circle 15 on Reader Service Card

# APPLE CASES

A series of studies in the application of Apples to business and other serious stuff.

– CASE 1 –

## The importance of a good business card.

THE SITUATION: You have an ordinary Apple II or Apple IIe.You don't have megabucks to spend. You need extraordinary performance from word processing, spreadsheets, data bases, communications and your other applications programs.

QUESTION: How will a new business card help?

ANSWER: Choose your business card from the VISION-80 family of products.

### VISION 80 80 Column Text Card

A sophisticated, easy to use 80 column card rated No.1 by reviewers around the world.

**80 Column Display:**
Largest available 9 * 10 dot matrix, giving a superb set of 128 upper & lower case characters, & a crisp set of line/block graphics, with software switching between 40 and 80 column screens.

**Compatibility:**
Fully compatible with Applesoft BASIC, PASCAL, MICROSOFT CP/M, FORTRAN and ASSEMBLER.
Fully compatible with most quality word processing, speadsheet, data base and applications programs.

**Communications:**
Full smart terminal emulation, file transfer & save, and screen print facilities.

**Installation:**
Installed in seconds into the standard Apple II or IIe, with no hardware or cabling changes for normal Apple operation.

All this and a set of powerful utility programs.

**NOW ONLY $195.00**

### VISION 80 VISION-128 128K Memory Expansion Card

A powerful RAM card which increases the available memory space of your Apple II or IIe from 64K to an incredible 192K.

**Compatibility:**
Fully compatible with all Apple software, and 'transparent' to the user.

**VisiCalc Enhancement:**
Provides all the extra bytes for storing large VisiCalc models in RAM.

**Automatic Operation:**
Utility programs can automatically activate the card when more RAM memory is required.

**NOW ONLY $295.00**

| VISION-VCE | VISION-AWII | VISION-128 UTIL |
|---|---|---|
| VisiCalc Expander PREBOOT DISK | Apple Writer II PREBOOT DISK | Utility Program Disk |
| Automatic VisiCalc preboot procedures for both the Apple II & Apple IIe, utilizing VISION-80 VISION-128K | Automatic APPLE WRITER II preboot procedures for both the Apple II & Apple IIe | A large variety of utilities for the expanded 192K memory, including the VISION-DRIVE diskette emulater. |
| ONLY $69.00 | ONLY $69.00 | ONLY $79.00 |

**FOR REAL SAVINGS, BUY A COMBO PACK:**

**VISION 80 VISION-COMBO PACK**
VISION-80 + VISION-128 + VISION-VCE

**ONLY $495 !**

*Action - Research Northwest*
11442 Marine View Drive, S.W.
Seattle, WA 98146
(206) 241 - 1645

Circle 22 on Reader Service Card

# A.P.P.L.E. DOCTOR

**Answer:**

First to clear up a little misconception. The Grappler + interface card contains all the software required to dump the High-Res image from the graphics screen onto the printer, so that you don't need any additional dump program. The problem is that the Business Graphics program doesn't send the proper characters to the interface card to tell it to print the graphics. If you can exit the program and return to Applesoft with the graphics undisturbed in memory, you can send the proper command to the interface to have it print the graphics. One way to exit the program is to open the disk drive door press RESET which will cause the disk to try to re-boot, and press RESET again to stop the boot process. This should leave you in Applesoft with the graphics intact. Now you can type PR#1 [RETURN] and PRINT CHR$(9)"G" to turn on the printer and print the High-Res graphics page 1. If the graphics have been stored on High-Res page 2 you will get funny blobs, so type PRINT CHR$(9)"G2" to dump page 2 instead of page 1.

**Question:**

*I have an Apple ][+ with a Videx Videoterm 80 column board. I can load Applewriter ][ and work with 40 columns, which I usually do for ordinary text, since my eyes are not as young as I'd wish. But for doing tables beyond 40 columns, I obtain 80 columns by using the Videx Applewriter Pre-boot disk before loading Applewriter. When I want to change between 80 columns and 40 columns while using Applewriter, is there an easier way than starting over from scratch each time? When not using Applewriter, I can go from 80 to 40 with [Ctrl-Z] followed by 1, and change back with PR#3.*

**Answer:**

Unfortunately I don't think it's possible to easily convert back from 80 columns to 40. The Videx Pre-boot disk program modifies the Applewriter program. It is not easy to reverse these modifications. Typing [Ctrl-Z1] when *not* in Applewriter sends these characters to the Videx card which causes it to turn itself off and return control to the Monitor ROM program that displays text on the standard text screen. If you type [Ctrl-Z1] from Applewriter it will treat it as an Applewriter command and not even send it to the Videx card.

**Question:**

*I recently purchased a game that boots in two stages. During the first stage, it's just like any other disk. In the second stage, however, there are terrible loud clicks and clacks—it sounds like the disk drive is choking to death! After ten seconds of this heart-stopping noise, the game is always ready to go. Do you think that this disk could be harmful to my "Disk II"?*

**Answer:**

No, the program is not damaging your disk drive in any way. What is probably happening is that the disk drive head is being recalibrated, that is it is moved to track zero. The head is guided by a platter with a spiral groove in it. The only way the Apple knows where the head is, is to read some information off the disk which contains the track number, or move the head out at least 35 tracks which will ensure that the head is at track 0. When the head reaches track 0 and the platter continues to turn, the head ratchets against the end of the spiral in the platter causing that anguishing sound, but no damage. It's possible that the copy protecting scheme used is causing your drive to have trouble reading the disk and is performing multiple head recalibrations.

**Question:**

*I would like to be able to have disk drive 2 active after booting up in drive 1. Is there some way I can modify DOS to do this?*

**Answer:**

The easiest way would be to add a line to your HELLO program. There is a location in DOS that controls which drive is active, all you have to do is change this to drive 2 and your next disk access will be to drive 2. If your HELLO program is in Applesoft use,

**POKE 43624,2 for drive 2.**

You can also change the active slot by,

**POKE 43625, slot number.**

**Question:**

*From reading many articles on the subject of shape tables it seems that $300 is the most popular location used. Is there any reason for it being used more frequently than $6000 which is a longer free RAM section?*

**Answer:**

Page three memory locations ($300-$3CF) are frequently used because they are "safe" locations. Applesoft does not use this area, and anything loaded there will remain intact regardless of how big your Applesoft program becomes, or how much variable storage space is required. Locations $6000 and up can certainly be used, but the programmer should take precautions to protect this area from being overwritten by Applesoft. (See the next question.)

**Question:**

*Can you explain the setting of HIMEM and LOMEM? Under what circumstances should they be changed? What are their normal settings? How do they differ from each other?*

**Answer:**

HIMEM and LOMEM control the areas of memory that contain an Applesoft program and the program variables. Applesoft is normally stored in memory starting at location $801 and continues upward in memory. Simple Applesoft variables and arrays such as A, BW, R(1,1), etc. are normally stored starting immediately after the end of the program. The LOMEM: command can be used to change where these variables are stored. For example, suppose you were writing a program that used the first High-Res graphics screen. Let's further assume that your program is $17B0 bytes long (I'll tell you how to find this out in a minute) and you have an array dimensioned for 500 locations. Since the program starts at $801 and is $17B0 bytes long, it follows that it ends at $1FB1 (how's your hex arithmetic?). The first High-Res graphics screen starts at $2000, so if the array is stored immediately after the program it will run into the graphics screen. The first time you do an HGR to clear the screen you will loose all the data in your array, or if you clear the screen and then put data in the array garbage will appear on the screen. The solution is to move the array data away from the graphics screen. In this case execute LOMEM:16384 from your program *before* you use any variables. This will cause Applesoft to start storing your variables at location 16384 (or $4000) which is just above the first graphics screen.

# GOT A FUNNY DISK?

## ... WANT TO KNOW MORE ABOUT IT?

**Then you need the**

(Confidential Information Advisors)

**CAN YOU . . .**

- **edit normal or protected disks?**
- **quickly find and recover any intact file, however badly the disk is corrupted?**
- **list programs directly from any disk - protected or not?**
- **examine textfiles directly from any disk - protected or not?**
- **analyse the formatting of normal or protected disks?**
- **decrypt commercial software - or encrypt your own?**
- **rapidly auto-search normal or protected disks for anything you like?**
- **understand & use the latest copy protection methods?**
- **use your Apple™ as a powerful document retrieval system?**
- **make use of an exhaustive knowledge of disk lore?**

**YOU CAN NOW** — with a little help from these 5 sophisticated disk utilities:

**TRICKY DICK** examines, records, deletes, and edits. It can: (1) read individual sectors from normal and most protected disks, (2) list their contents in BASIC, assembler, ASCII, or hex, (3) edit them; (4) write them back to the disk. Tricky Dick cunningly bypasses most protection systems, allowing you to work on disks with nonstandard formatting, half-tracks, and altered DOS marks. It is also a chief executive program that directs the following undercover agents:

**THE LINGUIST** reads in a trackful of raw data for your scrutiny, translates all the address information, and allows you to inspect the track's formatting. It also translates all 3 types of DOS encoding (6 & 2, 5 & 3, 4 & 4), and works with Tricky Dick to list and examine programs or textfiles on any protected disk. You can use The Linguist to recover valuable files from blown disks, improve your programming skills by studying commercial software, and analyse standard or altered formatting.

**THE TRACER** rapidly searches normal and most protected disks for up to six strings of your choice simultaneously (specified in ASCII or hex). The Tracer also verifies disk formatting, and sniffs out all hidden catalog or VTOC sectors. When it finds something, it transfers control to Tricky Dick and puts the cursor over the object of your search. A few further keystrokes allow you to make any necessary changes and write the sector back to the disk.

**THE CODE BREAKER** keeps your programs and textfiles from prying eyes by enabling you to translate them into a "secret code" during disk storage. This utility also deciphers encrypted commercial programmes, allowing you to use Tricky Dick to read, list, and edit software never before accessible to any disk utility.

**THE TRACKER** closely shadows the disk drive arm, carefully recording all its movements and operations. The Tracker's job is to display, on either your screen or printer, a list of every track and sector accessed during a LOAD, RUN, SAVE, or any other DOS operation. This utility also tells you exactly where a read or write occurred during any disk access. Use The Tracker's services to locate the precise trouble spots on a clobbered disk, to determine sector skew patterns, to discover the location of hidden "nibble-count" tracks on protected disks, and to learn much more about how DOS works. You'll be surprised to see just exactly where the disk arm really does go!

What's more, you get permanent access to:

**THE CIA FILES,** a 50,000+ word book designed to turn you into a disk expert. In addition to complete instructions for the 5 CIA utilities, the book contains an easy-to-follow hand-holding tutorial (written in plain English!) on all aspects of the Apple disk. Using the CIA utilities as your personal guides, you progress step-by-step to total disk mastery. You'll acquire a wealth of skills and information relating to disk repair and file recovery, DOS patches, copy protection, disk formatting, program encryption, and other vital topics. Much of the material has never before appeared in print.

**All programs are UNPROTECTED, and hence can be copied, listed, and modified at will. (special patches are described in the manual). They require one drive, DOS 3.3, and 48K of RAM.**

**— TO GET THE CIA ON THE TRAIL OF YOUR DISKS, —**
**SEND $65.00 Money Order, (checks allow time to clear), to:**
**GOLDEN-DELICIOUS SOFTWARE LTD.**
**350 FIFTH AVENUE, SUITE 3308, NEW YORK, N.Y. 10118**
**Dealers enquiries invited**

Circle 1 on Reader Service Card


# DOCTOR

HIMEM: performs a similar function but in reverse. String data is stored starting at the top of memory and grows downward, eventually meeting the variable storage. The function FRE(0) will return the amount of storage space you have remaining between the top of the variable storage and the bottom of the string storage. When you boot a disk, HIMEM is set to just below the bottom of the DOS. (For a 48K Apple this is 38400 with MAXFILES=3.) Suppose you wanted to store a long shape table in memory. You could store it below DOS but as soon as you generated some strings in Applesoft they would be written right over the shape table. To prevent this, reset HIMEM to just below the start of your shape table. If your shape table starts at $6000 execute HIMEM:24576 to protect it. Note that Applesoft starts the strings at one location below that specified so that although 24576 = $6000 the first location is still safe. Be sure to execute the HIMEM statement before you generate any strings, or you will loose them when you load your shape table.

LOMEM must be set to a value higher than the end of your program, and HIMEM must be set to a value higher than LOMEM or you will get the Applesoft error "OUT OF MEMORY".

Back to an earlier question. How do we know where LOMEM (or HIMEM) is set or where the end of the program is? Page 140 of the *Applesoft Reference Manual* lists the memory locations where these three quantities are stored.

**$AF,B0 end of program**
**$69,6A LOMEM**
**$73,74 HIMEM**

The addresses are stored as a two byte number with the least significant byte stored in the lower location. An Applesoft program segment to find the end of the program would be,

```
ENND = PEEK(175) + 256*
PEEK(176).
```

One other comment, sometimes when you determine the amount of memory available with the FRE(0) function, it returns a negative number. No, this does not mean you ran out of memory a long time ago. It's the Apple's way of telling you that you have more than 32768 bytes available. Simply add the negative number to 65536 to get the correct value.

A Call —A.P.P.L.E. BOOK REVIEW:

# ENHANCING YOUR APPLE

James Hockenhull/reviewer

*Enhancing Your Apple* $15.95
*by Don Lancaster.*
*Howard W. Sams & Co.*
*4300 W. 62nd Street*
*P.O. Box 558*
*Indianapolis, IN 46206*

THE Apple ][ possesses a certain amount of "power." How much power depends on one's definition of the term and on one's personal outlook. Don Lancaster is a believer. He states unequivocally that the Apple is "far and away the single most powerful tool *ever* put in the hands of individuals on an unregulated basis." That statement is guaranteed to make Apple owners feel good, whether or not they fully agree with it. The trick lies in taking full advantage of the power available. Here, too, Mr. Lancaster holds strong opinions. Applesoft? "It is impossible to write a great program in BASIC." Pascal? "Pascal is so bad as to be beyond the pale." What, then? "Great programs *must* be written in machine language." At a time when so much literature on popular computing has drifted into the "How To Get the Most For Your Adventure-Game Dollar" territory, it is refreshing to say that here is a book for hackers, full of information and insights at the nuts-and-bolts level.

The first volume of a forthcoming series, *Enhancing Your Apple ][* deals mostly with High-Res graphics and video output. Lancaster puts forth a number of simple, low-cost hardware modifications, explains in detail how they work, and provides supporting software, also explained in detail, where such routines are needed. The hardware mods consist of:

**Enhancement 2: the Programmable Color Killer.** Consisting of a single Dual Inline Package (DIP) socket and a resistor, this gizmo allows the Apple to output a true black and white video display under program control. Gone forever are color fringes around text characters and green or violet vertical elements in line drawings. The Color Killer is controlled like a software switch, by storing or POKEing to a couple of memory locations.

**Enhancement 4: the Field Synch.** The computing side of the Apple shares its clock cycle and memory with the video display side. The two operate in joyful independence of one another. Too much independence. The left hand has no way of knowing what the right hand is doing, so to speak. Lancaster demonstrates how the addition of one wire provides the computer with knowledge of the state of the video output. This simple modification opens a whole bag of impressive graphics tricks such as mixed text, High-Res, and Low-Res on the same screen, smooth animation, and easy light-pen interfacing.

**Enhancement 6: the Glitch Stomper.** A further enhancement of the Field Synch mod, the Glitch stomper is designed to eliminate the worst of the visual garbage usually seen when switching to and from the graphics modes. Though inexpensive, it is a bit more complicated than the other projects, involving a couple of logic ICs and a bit of wiring. As with the others, it is completely removable in case warranty service is required.

Most of the remaining Enhancements provide software support for the hardware. Number 5 delves further into mixed modes within a single video field; #6 shows how to scroll High-Res characters gently, one pixel at a time; Enhancement 8 explains a routine which clears the High-Res screen in a fraction of the time taken by the regular Apple method, and does so using an incredibly large number of colors or patterns. (This enhancement works well without any of the hardware modifications.)

Chapter 3 deals neither with hardware nor software per se, but rather presents a systematic approach to deciphering other people's machine-language code. The method is elaborate, involving everything from the "old" Monitor ROM to cases of colored felt-tip pens but, says Lancaster, it works and takes only a tenth of the time of "orthodox" methods. The author goes beyond the mechanics of assembly-language coding, into the larger structures and tricks of such low-level programming. The insights contained in the chapter may well be the most valuable part of the book.

Indeed, the real strength of *Enhancing Your Apple ][* lies in the vast amount of information continued within its pages. Whether or not the various enhancements are ever implemented or used, the reader will end up knowing a *lot* about video, graphics, and machine-language programs. And how much background should said reader have? The cover blurbs claim that the book is meant for all levels of Apple users. I disagree. Mr. Lancaster writes in a friendly, breezy style and certainly knows his stuff. But like so many highly-knowledgeable people, he tends to forget exactly how ignorant others may be. The writing will flow along, smooth and clear, for a while, then — pow! — some incomprehensible, esoteric bomb will be dropped. I suggest that the prospective reader be armed with, at the very least, some awareness of the structure of raster video displays (May I be so immodest as to suggest my article, "Video Interfacing," in the June, 1982 *Call -A.P.P.L.E.?)* and of the fundamentals of assembler.

While on the subject of style, the author has a penchant for a sort of mid-seventies hip jargon. We are told to "rap" with others and to "grok" programs. The devices being expounded are usually "mind-blowing." Perhaps this is an effective way to produce, in Gary Trudeau's wonderful phrase, consumer-friendly liveware, but this reviewer finds it strictly squaresville, man.

# Short Cuts™

by Kelly Puckett

Short Cuts is a utility that adds extra commands to Applesoft BASIC. It is easy to use, adds extra power to your programming, and best of all, it will save you a lot of time.

**Powerful Sorting**

Allows fast sorting of strings, real numbers or integer arrays as well as associated pointers to disk and data records.

**Input Commands**

Allows error checking, calculations, and automatic rounding during user input and allows validation and programmer-defined error messages.

**Print Formatting**

Gives X, Y cursor postioning, left and right justify, and decimal positioning.

**Program-Flow Control**

Allows the programmer to include "help" screens or other subroutines and make them available to the user during input without disturbing normal program control.

**Ease of Use**

Coexists with almost every other Apple utility and since it's from Penguin Software, it's supplied on an unprotected disk for most convenient use.

**$49.95**

**penguin™ software**

*the graphics people*

**830 4th Ave.**
**Geneva, IL 60134**
**(312) 232-1984**

Apple is a trademark of Apple Computer, Inc.

Circle 21 on Reader Service Card


# ENHANCING YOUR APPLE

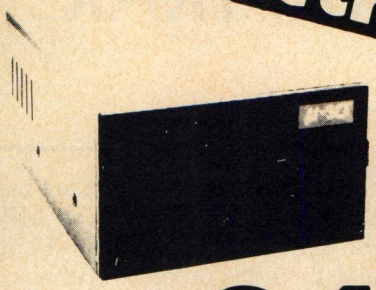
The book's first chapter seems out of place. In it Lancaster shows how to construct two different "glompers," gadgets which allow simple interconnection between a TV set's antenna terminals and an RCA plug. I have a lot of trouble believing that anyone who wants to do graphic updates during the raster's vertical blanking period is really going to be displaying on a television receiver through an RF modulator. I may be wrong.

And, in conclusion, a couple of warnings and a complaint. Warning one: in spite of the rich treasures promised by the book, nothing is free; making meaningful use of the Enhancements will require considerable programming effort. Warning two: no matter what anyone may promise, the Apple ][ only produces six colors (well, eight if you insist); other "colors" are optical mixes of them. With Apple's resolution such "colors" are usually more like patterns. Complaint: the book is expensive. It used to be that computer books cost a lot because the market was so limited. Now that computers are *the* golden-haired growth industry, I suspect that publishers are charging what they think the market will bear. At any rate, sixteen bucks is a lot of dough for something half the size of your average issue of Byte.

All in all, highly recommended to all whose attention is turning toward the gut level of the Apple ][.

```
]LIST

10  REM

AMERICAN FLAG : ALAN
     C YOUNG

     CALL -A.P.P.L.E.

100  GR
110  COLOR= 9
120 COLUMN = 0
130  VLIN 0,39 AT COLUMN
140 COLUMN = COLUMN
     + 1
150  IF COLUMN < 40
     THEN  GOTO 130
210  COLOR= 2
220 COLUMN = 0
230  VLIN 0,20 AT COLUMN
240 COLUMN = COLUMN
     + 1
250  IF COLUMN < 23
     THEN  GOTO 230
300  COLOR= 15
310  HLIN 23,39 AT 3
320  HLIN 23,39 AT 4
325  HLIN 23,39 AT 5
330  HLIN 23,39 AT 9
340  HLIN 23,39 AT 10
350  HLIN 23,39 AT 11
360  HLIN 23,39 AT 15
370  HLIN 23,39 AT 16
380  HLIN 23,39 AT 17
410  HLIN 0,39 AT 21
420  HLIN 0,39 AT 22
430  HLIN 0,39 AT 23
440  HLIN 0,39 AT 27
450  HLIN 0,39 AT 28
460  HLIN 0,39 AT 29
470  HLIN 0,39 AT 33
480  HLIN 0,39 AT 34
490  HLIN 0,39 AT 35
500  PLOT 1,2
510  PLOT 5,2
520  PLOT 9,2
530  PLOT 13,2
540  PLOT 17,2
550  PLOT 21,2
600  PLOT 3,4
610  PLOT 7,4
620  PLOT 11,4
630  PLOT 15,4
640  PLOT 19,4
700  PLOT 1,6
710  PLOT 5,6
720  PLOT 9,6
730  PLOT 13,6
740  PLOT 17,6
750  PLOT 21,6
800  PLOT 3,8
810  PLOT 7,8
820  PLOT 11,8
830  PLOT 15,8
840  PLOT 19,8
900  PLOT 1,10
910  PLOT 5,10
920  PLOT 9,10
930  PLOT 13,10
940  PLOT 17,10
950  PLOT 21,10
1000  PLOT 3,12
1010  PLOT 7,12
1020  PLOT 11,12
1030  PLOT 15,12
1040  PLOT 19,12
1100  PLOT 1,14
1110  PLOT 5,14
1120  PLOT 9,14
1130  PLOT 13,14
1140  PLOT 17,14
1150  PLOT 21,14
1200  PLOT 3,16
1210  PLOT 7,16
1220  PLOT 11,16
1230  PLOT 15,16
1240  PLOT 19,16
1300  PLOT 1,18
1310  PLOT 5,18
1320  PLOT 9,18
1330  PLOT 13,18
1340  PLOT 17,18
1350  PLOT 21,18
```

# Laing Electronics



μ-SCI

MICRO-SCI
A2 DRIVE

# $249

*BUY THE FIRST AND THE BEST APPLE COMPATIBLE DRIVE!*

**A2 DRIVE WITH CONTROLLER $309**
(FREE SHIPPING IN USA OR CANADA.
A2 MODELS ONLY.)

| | |
|---|---|
| **A40 (40 TRACK DRIVE W/O CONTROLLER)** | **$284** |
| **A70 (70 TRACK DRIVE W/O CONTROLLER)** | **$365** |
| **— CONTROLLER FOR A40 OR A70 DRIVES** | **$ 79** |
| **A3 APPLE III DIRECT REPLACEMENT** | **$299** |

**10382 Stanford Ave.,E-203, Garden Grove, Cal., 92640**
**Phone (714) 534-4216**

Check or Money Order, — NO CREDIT CARDS! Check's Allow 10 BANKING DAYS FOR CLEARANCE. Prices and specifications subject to change without notice. Add $7.50 for UPS surface. Cal. Res. add 6% Sales Tax.

Circle 11 on Reader Service Card



# Create well-planned, delicious dinners with The Pizza Program

***Here's why America loves The Pizza Program.***

It's the first intelligent menu planning system. Now deciding what to fix for dinner is easier than ever before.

It's the perfect gift for busy cooks and people on the go.

It's guaranteed to organize your meal planning — a great time saver. And, it comes with full printing routines for quick print-outs of menus or shopping lists.

Included is a food file maintenance program so it's easy to add variety or change any food item or group in the system. This helps you customize and control each menu to your individual tastes and budget. You'll enjoy better nutrition and save money at the grocery store. It's fun to use and a great companion for any kitchen.

In addition, you get a 40-page documentation manual with easy to follow instructions. Now, it's available for the Apple II Plus, IIe, or the IBM PC.*

Your complete satisfaction means everything to us. We invite you to try The Pizza Program for 30 days before you decide. If you're not completely satisfied, our guaranteed return privilege assures you of a prompt and courteous refund. There's no risk.

## Just $34.50

To try it, send a check for $34.50 plus $2 for shipping and handling. (In California add $2.24 sales tax). Or, use your VISA or MasterCard and call toll free. Call today. We ship promptly by first class mail.

**ORDER TOLL FREE**
(24/hrs/day)

**800-453-4000**
(in Utah call **1-800-662-8666**)

## Gourmet Software

671 Eden Avenue
San Jose, CA 95117

*Apple and IBM PC are respectively registered trademarks of Apple Computer, Inc. and International Business Machines.

Circle 45 on Reader Service Card


# Growing computer industry expands authors' choices

The rapidly expanding personal computer industry offers greater opportunities for the software programmer and author in search of a publisher.

Yet the growth poses its own problem - the choice of a publisher.

Here is a list of questions to consider when looking for the publisher best-suited for your product:

-How large is the publisher's distribution network? A publisher with international connections can offer more exposure than companies limited to regional or national sales.

-How will your product be marketed and advertised? No matter how good the program is, if people don't know about it, it won't sell. Look for a publisher with a marketing budget large enough to give individual attention to the program.

-Does the publisher market programs for more than one computer? The days of limited selection in hardware are long gone. Limiting programs to one or two computers can limit sales and profits. Authors can increase their share of the marketplace by looking for a publisher devoted to converting programs to a variety of popular computers.

-Does the publishing house lend technical support to authors? Some publishers only accept programs ready for the marketplace. A lot of good ideas are lost in the long run. The publisher that offers assistance invests a greater stake in the product, the author and the success of the product.

-Does the publisher offer complete product support to consumers? In these times of consumer awareness, the company that has established a network to answer customer questions about its products fares better than those who do not offer this support.

Each of these services leads to greater sales which in turn lead to greater profits for the individual programmer.

Sierra On-Line, Inc. is committed to paving the way for an author's success.

Sierra On-Line's product line is distributed worldwide with production facilities in the United States, Japan, Australia, the United Kingdom and South Africa.

Sierra On-Line employs a well-financed, in-house marketing and advertising staff with a knack for creating tailor-made campaigns for products.

Each program is evaluated by experts, who may suggest enhancements to improve the product and to increase its appeal to customers.

Further, Sierra On-Line isn't limited to a single computer. The company closely monitors computer trends and makes existing products available for the most popular lines - all to the author's benefit.

A packet for authors with more information about the software submission process and our company is available by writing Sierra On-Line, Inc., Sierra On-Line Building, Coarsegold, CA 93614, or by contacting David Siri or Howard Luthy by phone at (209) 683-6858.

Circle 48 on Reader Service Card

A Call —A.P.P.L.E. TECHNOTE:

# GRAPPLER +/MX-80 WITH GRAFTRAX

Ken Kashmarek

THE MX-100 Review by Bruce Detterich (February 1982, page 45) is an outstanding example of the value of *Call -A.P.P.L.E.* A quality piece of work often generates several rounds of letters, and Bruce's article generated several responses. I found the responses to be as valuable as the original work.

When I purchased my MX-80, it was accompanied by an outstanding manual by David A. Lien (published by COMPUSOFT Publishing, Box 19669, San Diego, CA 92119). The title is: Epson MX Printer Manual with GRAFTRAX Plus (# P-8294003-0). It contains all of the information presented by Bruce and most of the responses to his article. The problem of poor documentation has been overcome with this fine manual.

NEW APPLE II™ EEPROM MEMORY

**HARD-RAM**

(Non Volitile Read/Write Memory)

**Based On Advanced EEPROM Technology**

At last you can add On-Board Read/Write Memory that does not lose data during power down and does not require a battery back up. Read/Write any memory location using normal Read/Write instructions. No need to remove chips as with UV-EPROMS. You can dump data from disk to Main Ram, then to Hard-Ram and back from Hard-Ram to Disk, or you can program Hard-Ram directly from your keyboard.

**Save Wear and Tear On Disks**

**Store Alternate Languages/Operating Systems**

* INTEGER BASIC
* APPLESOFT™ BASIC
* CUSTOMIZE PRESENT LANGUAGE
* NEW COMMANDS
* UTILITIES
* DOS (FREE UP 13K OF RAM)

Hard-Ram is compatible with programs using the Standard Apple™ Ram cards and works with Apple II™ or Apple II+™

**2K Byte System Model No. EE02A ..... $169.95**

Includes assembled and tested Plug In Card with 2K Bytes (One X2816A EEPROM) and complete Data Package with Example Programs and Operating Instructions, 90 Day Warranty, and Sockets for expanding up to 16K.

**16K Byte System Model No. EE16A ..... $299.95**

Includes all of the above with a total of 8-X2816A

X2816A (SINGLE CHIP) CAT # 703024 ..... $29.95
X2816A (3 OR MORE) CAT # 703025 ..... $24.95
X2816A DATA SHEET CAT # 103012 ..... $1.50

(The Hard-Ram Board will also accept pre-programmed 2716 EPROMS and/or 6116 Static Rams)

INQUIRE ABOUT HARD-RAM FOR OTHER COMPUTER SYSTEMS

DEALER INQUIRIES INVITED

Send 25c for our 1983 Summer Catalog of electronic parts (free with order) including resistors, capacitors, semiconductors, plastic boxes, motors, etc.

**LOWEST PRICES—SAVE UP TO 50% OR MORE!**

Add $2.00 shipping to each order. In Texas add 4% tax. $10.00 minimum order. COD's, add $1.50.

VISA

TINKER TRON
P. O. BOX 53128
LUBBOCK, TEXAS 79453
806/745-2228

MasterCard

All TinkerTron Products Have A Ten Day Money-Back Trial Period.

Circle 38 on Reader Service Card

I am using my printer with the Grappler+ interface card. To date, I have not seen any reviews of this card with the MX-80 printer. An undocumented feature of the card is its ability to sense the SELECT line on the printer. This determines if the printer is online. If the printer is not online, an alarm is sounded and a message displayed at the center of the Apple display screen. After readying the printer, hit return and the Grappler+ will proceed (the screen is also restored to its former state). This is a nice feature since the program does not have to be restarted in order to properly access the printer.

I have encountered one problem with this controller card/printer combination. The MX-80 accepts the sequence ESC"@" as a software reset of printer functions (reset to power up state). However, while the printer is performing this function, the Grappler+ times out and behaves as though the printer was offline. Carriage return is necessary to proceed. This may be bypassed by POKEing the code for "@" directly to the printer:

```
10 PRINT CHR$(27); : REM "ESC"
20 POKE 49296,64 : REM "@",
   slot 1
30 IF PEEK(49601) > 127 THEN 30
```

I have written Orange-Micro about the problem. They acknowledged that the problem is on the Grappler+ card. The problem has been fixed, and the fix is available from Orange-Micro for $35. (to obtain a replacement chip contact Bob Mickey at 800-854-8275). If you plan to run the Grappler+ with the MX-80 (or perhaps the MX-100), then be certain the controller card has the latest EPROM version on it.

One hopeful note: if you are using a printer buffer (I have the MPB-16K buffer from Practical Peripherals), then this problem is of no consequence. The SELECT status is not passed to the controller card since the buffer will accept data even if the printer is not online. This condition may not be the case with other buffers or software spoolers that use RAM to buffer the printer. Note that ESC"@" also sets top of form at whatever point the paper is setting, just as is done from power-up.

It is difficult to simulate the 40 column screen output to the printer. A program can generate 40 character output lines to the screen very nicely by ending each PRINT with a semicolon (;). However, when this is echoed to the printer (PR#1), some unexpected results occur. The printer puts out 80 character lines since no carriage return is sent at the end of 40 characters. By setting the printer line length at the controller board with CHR$(9)"40N", carriage returns are introduced as unexpected points in the output. Each character passed to the printer is counted toward the length set in the controller board firmware (including escape sequences and unprintable control characters). It is better to turn off the Grappler+ length checking with CHR$(9)"0N" and use ESC"Q" CHR$(40) to set the line length in the printer itself. If the controller board checking is not turned off, and a continuous stream of characters is sent to the printer (no carriage returns), then the Grappler+ sends 16 blank characters to the printer for every 256 characters printed.

The controller board length checking must be turned off anyway for graphics, so it is best to use this option wherever the printer is selected (PR#1). Once this is done, the line length can be controlled entirely with printer commands.

The MX-80 printer builds a line until a carriage return is received (or the line length is reached). If the printer is turned off (PR#0) without being preceded by a carriage return, then the last line is not printed. CHR$(18) can be used to empty the buffer, with or without printing a carriage return (it also turns off compressed characters). This should be done prior to using CHR$(12) to skip to the top of a new page.

One of the biggest question areas centers on the high bit of each byte sent to the printer. Is it on or off? Contrary to popular opinion, the Apple can send all eight bits of a byte to the printer. CHR$(9)"H" *allows* the high order bit to be sent (Grappler+ dip switch #1 must be off). CHR$(9)"X" suppresses the high order bit (default is "H", or allow the bit to be sent). On the printer, ESC"#" accepts the high order bit as is from the Apple. ESC"=" clears the high order bit, and ESC">" sets the high order bit to 1. With this in mind, we can determine what gets sent to the printer and how we can make use of the high order bit.

The PRINT command always turns on the high order bit. The Grappler+, by default, passes the high order bit along, whether on or off. The MX-80, by default, clears it to 0. This is normal. We need the high order bit to be accepted for graphics work. ESC"K" or ESC"L" will set graphics on the MX-80. However, PRINT cannot be used to send graphic command bytes to the printer (remember, PRINT always turns on the high order bit). Thus, POKE or an assembly language routine should be used to transmit graphics directly to the printer. This also avoids problems with the controller card misinterpreting some byte sequences as commands.

ESC"=" and ESC">" can be used to set and clear the high bit as needed, but this has the potential for generating problems with the escape sequences themselves. With the high bit forced on, some escape sequences may not be recognized. Escape sequences are not recognized until the graphics byte count is reached (set by ESC"K" or ESC"L").


# ☑ D.R.S.™ Can Do It!

**Nothing else even comes close to D.R.S.— our Disk Recovery System—not Bag of Tricks,™ not Dark,™ not Disk Fixer™—nothing!**

☑ Put your damaged disk in one drive, a blank disk in the other. D.R.S. will do what all those other guys will do...and *far more!*

☑ No other program actually reads information from damaged sectors, but D.R.S. does.

☑ No other program can read disks that were recorded off-center, but D.R.S. does.

☑ No other program can read disks with errors caused by hub damage, but D.R.S. does.

☑ No other program types, grades and fixes all possible files, but D.R.S. does.

☑ No other program makes recovered files accessible for conventional editing, but D.R.S. does.

☑ And all of this is totally automatic. D.R.S., a step ahead of the state-of-the-art in Apple disk recovery systems.

**$100**

SOF/SYS, INC.

**4306 Upton Ave. So. • Mpls., MN 55410**

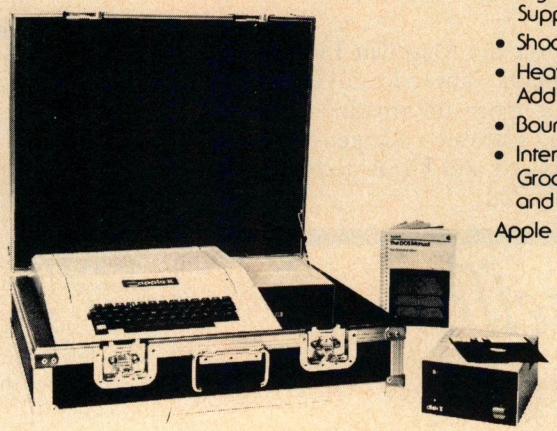
Available at your dealer or call us at **(612) 929-7104**
We accept VISA/MasterCard

Circle 10 on Reader Service Card

FLIGHT FORM

**BY CASES, INC.**

DESIGNED TO PROTECT YOUR COMPUTER



**Features —**

- Rigid Shell Made of Plywood Supported High Impact ABS.
- Shock Resistant Foam Lining.
- Heavy Duty Hardware Add $22.50 (U.S. dollars) for lock.
- Bound Metal Edges.
- Interlocking Tongue and Groove Extrusion, Mating Lid and Bottom.

Apple II Plus 2 Drives $175.00

OTHER MODELS AVAILABLE

Overseas Inquiries Welcome

CLUB AND DEALER DISCOUNTS AVAILABLE

CASES, INC. P.O. Box 33820 Seattle, WA 98133-0820 (206) 365-5210

VISA
MASTERCARD

Circle 46 on Reader Service Card

# TOUCH AND GO

Touch the Magellan LIGHT PEN to your Apple II® or Apple IIe® and watch your graphic and game designs come to life. This amazing new LIGHT PEN gives you high-speed, high-resolution graphics with the control of one dot accuracy.

Unlike competitive pens which take up a slot, the Magellan LIGHT PEN connects to a micro-miniature electronic module you plug into your computer game port. Its input/output transparent design lets you use the same port for game paddles, joysticks and other accessories.

To use the LIGHT PEN, think of it as normal pen and paper—except the paper is replaced by your monitor. Simply point the pen on the screen and press the programmable switch on the pen's body. In seconds, you can draw points, lines, circles, squares and other standard shapes. Once a drawing is complete, it can be saved and/or printed to be used or edited later.

In addition, the Magellan LIGHT PEN includes these extra features for even quicker, more accurate graphic designs:

- & Driver Software included
- Versatile Graphics Drawing Software
- Complete Documentation
- Provides Vertical Blanking Signal for flicker-free graphics
- ACCU-TRAK Sensing Circuitry for precise designs

Get your hands on the Magellan LIGHT PEN and you'll never want to let go! Order today, or call for more information. The LIGHT PEN and software package is only $189.95. MasterCard and VISA accepted, dealer inquiries invited.

*Magellan* COMPUTER, INC.

4371 East 82nd Street, Suite D
Indianapolis, IN 46250
(317) 842-9138

Apple and Apple II are registered trademarks of Apple Computer, Inc.

Circle 40 on Reader Service Card

## TIRED OF PAYING BILLS?

Then let your Apple do it! Not just another check-book program, the BILL PAYER™ System turns your Apple into a complete check-writing and record-keeping system for all those bills that you have to pay on a regular basis. Its powerful features include:

- A professional-looking check (check order forms included).
- All files & program on one disk.
- Fully prompting — easy to use.
- Maintains list of payees — pays bills QUICKLY!
- Has built-in reconciler — almost balances itself!
- Search capability
- Checks formatted for window envelopes — no more addressing!
- Disk is copyable for easy backup.

System requirements: Apple II, Applesoft, single disk drive, DOS 3.3, printer.

Send check or money order for **$49.95** to:

**PLEASURE POINT ENTERPRISES**
**5483 PLEASURE POINT LANE**
**BELLEVUE, WA 98006**

Washington State residents add $3.95 (7.9%) sales tax.

DEALER INQUIRES INVITED

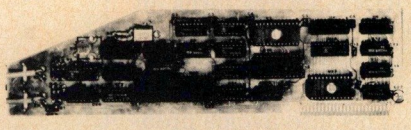
Apple, Apple II, Applesoft, DOS 3.3 are trademarks of Apple Computer, Inc. Diversi-DOS is a trademark of DSR, Inc.

Circle 28 on Reader Service Card

# 219.95

## FINALLY A RIGHT PRICE FOR THE RIGHT PRODUCT

**micromax**
presents
VIEWMAX-80



## THE RIGHT 80-COLUMN VIDEO CARD FOR YOUR APPLE II*

It is more compatible with existing 80-column application software than other leading cards. And it is loaded with features. Check for yourself.

| | RETAIL PRICE | 7 X 9 CHAR DOT MATRIX | TRUE DESCENDERS | BUILT-IN SOFT VIDEO SWITCH | BUILT-IN INVERSE VIDEO CHAR. | FULLY PASCAL COMPATIBLE | SHIFT KEY SUPPORT |
|---|---|---|---|---|---|---|---|
| **VIEWMAX-80** | 219 | Yes | Yes | Yes | Yes | Yes | Yes |
| **SMARTERM*** | 360 | No | No | Yes | Yes | Yes | Yes |
| **VIDEOTERM*** | 345 | Yes | Yes | No | No | No | No |
| **SUP'R TERM*** | 375 | No | Yes | No | Yes | No | Yes |
| **OMNIVISION*** | 295 | No | No | No | Yes | No | Yes |
| **VISION 80*** | 375 | Yes | Yes | Yes | Yes | Yes | Yes |
| **FULLVIEW 80*** | 379 | Yes | Yes | Yes | Yes | Yes | Yes |
| **WIZARD 80*** | 245 | Yes | Yes | No | Yes | Yes | No |

VIEWMAX-80 is functionally compatible with VIDEX's Videoterm and works easily with 80-column applications like CP/M, Pascal, WORDSTAR, AppleWriter II, Zardex, Easywriter, Letter Perfect, Magic Window, Apple PIE, VISICALC, ASCII EXPRESS, Transend, dBASE II, micromodem II, multiplan, etc.

Shift Key Mod and Preboot disk for Visicalc and AppleWriter II available as low cost options. See your local Dealer or order direct. Visa/MasterCard accepted. Dealer & OEM inquiries welcome.

**BACKED BY A FULL 2-YEAR WARRANTY.**

**micromax systems**
6868 nancy ridge dr.
san diego, ca 92121
(619) 457-3131

Also, Apple Parallel Printer Card; $89.95
Apple 40-Column Upper/Lowercase Adapter: $29.95
Z-80 CP/M Card: $179.95

"WE MAXIMIZE YOUR MICRO INVESTMENT"

*Trademarks of Apple Inc, Advanced Logic Sys., Videx Corp, M&R Enterprises, Computer Stop, Vista Computers, Bit 3 Computers, Wesper Microsystems.

Circle 39 on Reader Service Card

A **Call —A.P.P.L.E.** SOFTWARE REVIEW:

# THE GAME OF LIFE

*Val J. Golding/reviewer*

RIGHT off the bat, let's declare the title above as a fake. Not that we are not writing about the Game of Life, just that we are not writing about the ancient and popular *computer* game of that name. You know, the one from *Scientific American* some years back, where you create some colonies and watch them propagate. We might better have titled this review "The Game of Real Life," but then that would have shot down our catchy title, to say nothing of our opening paragraph, and then where would we be? We'd open with the next paragraph.

We often work long and demanding hours, frequently under deadline pressure. We enjoy programming immensely, although we do not have the time to devote to it that we would like. The usual cases are when a member calls the Hotline with a problem that a short routine can solve, or when a situation arises such as the one described in March, which resulted in CP/MUFFIN, thus we program as a form of relaxation.

This is the real game of *life,* but what does it have to do with our real topic? Read on...

On the telephone, we decry games. We don't have the time, we say, our knowledge is very limited and we probably can't be of much assistance. This, however, is not exactly the whole truth. We do in fact play games from time to time. We sometimes start to work in the evening, faced with several projects that require our attention, stare at our green monitor for a few minutes, while the monitor mechanically stares back at us, saying nothing on its own. Finally, we recognize the signs, we reach toward a pile of "forbidden" diskettes and say "To hell with it, we're going to play a *game*".

In our editorial office, a fair number of games pass through. Most of these end up with **Patti Hoffman** in the Testing and Evaluation Department at the general office. This is where they belong. Once in a while, one or two get waylayed (perhaps purloined is a better term). **Kathy Pride** (nee Cherry), one of our valuable right hands, who logs all our incoming mail, is an incurable game addict. Since she has certain connections in the software industry, new games occasionally mysteriously appear on her desk. Lunchtime often finds her using a *Call -A.P.P.L.E.* computer to play a game. Is this a matter for discipline? Far from it.

"Gee Kathy, that looks pretty neat... can I borrow that this weekend?" Kathy, naturally, fearing for her job, responds "of course".

So, wagging the tale of the shaggy dog, our plan is from time to time to offer you our impressions of some of these games — call it a review if you like, more correctly one individual's impressions of current offerings.

How many of our readers and members go back to 1977 or 1978, when the Apple ][ was first introduced? At that time, the extremely fast but rudimentary programming language *Integer Basic* was the "home" or motherboard language of the Apple ][. Applesoft I was an optional bug-filled language to be laboriously loaded from cassette tape. A disk operating system was, at that time, just a gleam in Apple's eye. *The* game to play was *Star Trek* (later called Apple ][ Trek, due to trademark problems), a space adventure game more comprehensive than any other of its era. It was written by **Wendell Sander** (later to be design engineer for the Apple *III*) and **Allen Baum** (co-author, with Steve Wozniak, of the original Apple ][ monitor) It was supplied free on cassette tape with each Apple ][ sold. Those of you who have a 16k RAM card (hence Integer Basic) and a cassette recorder, might be interested in trying to scout up a copy from an Apple dealer who was in business in those early years.

Despite its [relative] antiquity, Star Trek remains today as a forerunner of modern space-adventure games. The text page was used for the video display; it was neatly partitioned off into various panels, and the alternate text page (page 2) was used for additional display. The objective, of course, was to destroy as many Klingons as possible, and along the way you were subject to such random occurences as space storms, etc. A number of strategically located star bases allowed you to replenish your supply of photon torpedoes, recharge your energy and accomplish needed repairs. We sat for hours on end, fascinated by Star Trek's intricacies. Although by today's standards it could not be described as sophisticated, it remains as viable and as playable now as it was then.

*Stellar Trek*
*Rainbow Computing, Inc.*
*Garden Plaza Shopping ctr.*
*9719 Reseda Blvd.*
*Northridge, CA 91324*
*Not currently available*
*but may be reissued.*
*Unprotected*

Stellar Trek is a relatively modern update of the original, referred to above. It adds a number of new and challenging features to the original, but fails miserably in speed. Star Trek was conceived as a fast moving science-fantasy adventure game. In terms of what it has added as options, Stellar Trek is without compare. With respect to speed of execution, it suffers tremendously when compared to the original. What could have been written as single keystroke commands (using GET's or keyboard reads) require the player to terminate every input with a carriage return.

Since it is written in Applesoft, rather than the far speedier Integer Basic, those who have played the original would never be satisfied with the "wait for something to happen" feeling of this version. It is further slowed by almost constant use of DOS (Dumb Operating System), to load various text files intrinsic to the program. —◉→

We Are Not
PIRATES
But We Can Show You How
To
UNLOCK LOCKED-UP
SOFTWARE
with our complete program listings
and step-by-step instructions
YOU CAN, TOO!

core
IN-DEPTH COVERAGE
of
Special Interest Subjects
• GRAPHICS • DATA BASES
• UTILITIES • GAMES
For Hobbyists and Advanced
Computists
Published Quarterly

hardcore
HARD FACTS
on
APPLE SOFTWARE
An Unprecedented and Controversial disclosure of closely-held
COMPUTER SECRETS
How to: Back-Up Disks
Customize
Commercial Programs
Undo Copy-Protection & More!
Published 8 times yearly

Make checks and money orders payable to:
CORE/HARDCORE Computist
P.O. Box 44549H Tacoma, WA 98444
Annual Subscription Rate:
$20.00 for 8 issues of HARDCORE Computist and 4 issues of CORE
Canada $29.00 Mexico $32.00
Overseas, foreign countries $42.00
Sample issues: $5.00 each, in U.S.A. $8.00 outside U.S.A.
Name:
Address:
City: State:
Country: Zip
Payment must accompany order.
U.S. funds only. No credit cards.

Circle 26 on Reader Service Card

# THE GAME OF LIFE

The additions and new concepts to the basic game are substantial; to have written this version in assembly would have resulted in a science-adventure game without peer. Unfortunately, this is not the case. For those of you who have not experienced the superior speed of either Integer Basic or assembly language, we suspect you will find Stellar Trek an exciting challenge; a game you will find no guilt in playing for hours on end. For those of you who can appreciate the effect of fast execution on an adventure game, you may find yourselves driven up the wall by the excruciating waits for something to happen.

*MILESTONES* *$19.95*
*Creative Computing, Inc.*
*P.O. Box 789-M*
*Morristown, NJ 07960*
*Unprotected*

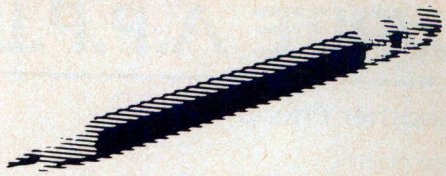
*Milestones* is a card game of skill and chance, one of our current favorites. The premise is a 700 mile race between you and Apple. You are dealt a tableau of seven cards to start, which (with exceptions) must be played one at a turn. If you cannot play, you may discard one card and draw another. This replaces your current play. Cards are separated into several groups: Mileage, proceed X miles (25, 50, 75, 100 and 200 miles), Hazards (stop light, flat tire, accident, out of gas, speed limit), remedies (green light, spare tire, repairs, gasoline, end of limit), preventions (right of way, puncture proof, driving ace, spare tank). Separate hazard cards may be played against your opponent (Apple).

Scoring is on a point basis, with rewards for trip completion, coups (countering an out of gas with a spare tank), etc. A game constitutes 50000 points, which may take from three to seven "hands." The display is in high-res color graphics, quite well done. It is fascinating, and typical of those games which make you feel you have to play just one more. We know we can get hung up on it for hours at a time.

We applaud Creative Computing for supplying Milestones as an unprotected diskette at a very reasonable price, and therefore ask that you don't rip them off. It is a very decent game, which we recommend, and one which can provide hours of entertainment.

Micro Match™
SAVES MONEY
Don't Let Programs Gather Dust!
TRADE Original SOFTWARE
with Documentation for
ALL MICROS . . . ALL PROGRAMS
WE MATCH TRADERS
for only $5.00
GUARANTEED SATISFACTION
FOR UNLIMITED TRADING:
Ask about SOFTRADERS
Worldwide Trading Network
• Quarterly Directories
• Monthly Newsletter
• Cash Bonuses • Much more
Send your system description, titles of all Software wanted, titles of all software to trade and S.A.S.E. Send no money.
SOFTRADERS™
International
1610 Shomaker Drive
Murphysboro, IL 62966

Circle 30 on Reader Service Card



## Z80 + ?

Dear Sir,

I am looking for a Z8001 card for my Apple systems. So far I have been unable to locate one. Can any reader help?

I cannot understand the poor showing of this processor in the micro field. It has the simplest instruction set of any 8 or 16 bit processor and is incredibly easy to hand program. Moreover, it is faster than all the others in practical programming as opposed to instruction speeds.

Multiple precision division and multiplication to *any* number of bits is incredibly easy.

A big facility is that *bytes* are freely accessible within any length of word and easily rearranged by single instructions. The 68000 needs long chains of instructions to perform these operations.

Talking to others, I get the impression that most never try anything but their first choice and see nothing but faults in other suggestions. Even the makers of the 68000 describe it as impossible to hand program. I would heartily agree.

The 16032 might be better, but no one wants to give any information about it. The basic specification gives little idea as to its strengths and weaknesses although it does look promising.

*R. G. Silson*
Near Station
Tring, Herts.
HP23 50X England

*I'M SORRY we know of no other Z80xx cards. "Appli-Card" has a Z80 running at 6 MHZ.*

## Bugs in the Recipe

Dear Val,

I wanted to thank you for your encouraging comments when I mentioned to you at Anahiem my efforts to debug a routine in the recipe file program. Your comment that I was on the right track spurred me on and I would like to share with you the results of my efforts.

You will recall that the routine in question was one that was frequently used in the program, namely "press return to continue." The bug consisted of the fact that if any other key except return was pressed (for example the space bar by accident), the program would lock up with reset and reboot the only way out — definitely disconcerting, especially for a beginner. The offending program lines are shown below.

```
80  REM INPUT C/R
    TO CONTINUE
90  POKE CB,0: REM CLEAR
    KEYBOARD (CB was set
    elsewhere to -16368)
100 NORMAL:PRINT "PRESS";
    :INVERSE:PRINT "RETURN";
    :NORMAL : PRINT
    "TO CONTINUE";
101 FLASH:PRINT U$;: NORMAL
110 WAIT KB,128: IF PEEK (KB)
    <> 141 THEN 110
120 POKE CB,0: HTAB 1:
    CALL -875: RETURN
```

I kept working on this series digging deeper and deeper. The key seemed to be in line 110. I studied and studied and traced the program flow very carefully when return was pressed and when another key was pressed. Suddenly it hit me! At the beginning of the sequence (line 90) CB is carefully set to 0. However, when a key other than return is pressed, KB is set to a value other than 141 and the program loops back to 110. *But now KB still contains the value of whatever key was pressed, and even if return is now pressed, the total value of KB is not 141.* So the odds of finding a combination of keystrokes that will toggle the total value of KB around to 141 again is nearly impossible! No wonder the program hangs! The solution is now apparent:

```
110 WAIT KB,128: IF PEEK (KB)
    < > 141 THEN POKE CB,0:
    GOTO 110
```

I eagerly made the change, ran the program, and VOILA! Success! It worked perfectly, ignoring all keys waiting faithfully for return to be pressed and then continuing.

Finding and fixing this bug was interesting, educational, and great fun, particularly since it was somebody else's program and I didn't have the frustration of having written the bug myself! Thanks for your encouragement. This input routine looks like a good candidate to file away for future use. . .

*Jim Wiebe*
7139 Flight #4
Los Angeles, CA 90045

## Where To Put it

Dear Val,

I would like to add some ideas to Bill Parker's "Where to Put Machine Code" in the January issue of *Call -A.P.P.L.E.* In looking through Beneath Apple DOS and the source for DOS 3.3 there are some other areas available.

DOS itself has some completely free space without playing some stunts. The following table applies.

| RANGE | HEX LENGTH | DECIMAL LENGTH |
|---|---|---|
| $B5FE-$B5FF | $2 | 2 |
| $B6B3-$B6FD | $4B | 75 |
| $B78D-$B792 | $6 | 6 |
| $B7F9-$B7FA | $2 | 2 |
| $B7FF | $1 | 1 |
| $BA69-$BA95 | $2D | 45 |
| $BCDF-$BCFF | $21 | 33 |
| $BFD9-$BFDB | $3 | 3 |

Now if one wants to really get some space, kill the INIT command. To do this, store a space ($20) at Location $A884. From now on, if one enters the INIT command they get the SYNTAX ERROR message. In case some smarty tries to do the INIT process via a call to the file manager, store a $6A at $AADF and a $B3 at $AAE0. This will result in the WRITE PROTECT error return. Now look at all of the space you get!

| RANGE | HEX LENGTH | DECIMAL LENGTH |
|---|---|---|
| $A54F-$A56D | $1F | 31 |
| $AE8E-$AF07 | $7A | 122 |
| $B600-$B65C | $5D | 93 |
| $B6B3-$B7B4 | $102 | 258 |
| $B7C2-$B7D5 | $14 | 20 |

It would take hours to test any command other than INIT to see if something else got messed up. This table has been developed by looking through a cross reference of DOS to see what is freed up by killing the INIT command. The only test I ran was to zero all of these locations, then use the system for an evening. PR#6 still works and CONTROL-OPEN APPLE -RESET still works properly on the *IIe*. By storing zeroes, any branches to these locations would have sent me to the ROM monitor. That did not happen.

*Cecil Fretwell*
2605 Highview Avenue
Waterloo, Iowa 50702

# WRITE A.P.P.L.E.

## Another Friend

Dear Editors:

One of those programs that repays one for the entire subscription to *Call –A.P.P.L.E.* is PRINT USING AND FRIENDS by Craig Peterson from ALL ABOUT APPLESOFT. However, one might quibble about & CLEAR TO EOL and & CLEAR TO EOP. It would seem to be easier to use a simple CALL –868 or CALL –958. Encouraged by the final paragraph of the article, I decided to modify these to CLEOL & CLEOP. This did not prove to be as simple as I expected. In fact, I had to stare at the command tables (lines 112–120 of the listing) for quite a while to figure out what was going on. In the hope that I might resolve some confusion in the minds of others, equally non–expert programmers, I shall detail how I went about modifying the command tables.

The command tables looked to me like an Applesoft program line, following the four bytes for "next–line pointers" and current line number, since the table for BELL is nothing but the ASCII for B,E,L,L. The first byte for CLEAR TO EOL had me puzzled until something clicked and I looked up the token for CLEAR, to find it's BD. Not surprisingly, the following byte is the token for TO. For CLEOL, I entered at 943F:43 4C 45 4F 4C 00. Similarly, at $9445:43 4C 45 4F 50 00. Eureka! It worked. CLREOL might have been preferable, but CLEOL fits into the available space. Just to be a smart aleck, I changed BELL to BEEP.

*W. S. Skeen*
Rt. 1, Ager Rd.
Hornbrook, CA 96044

## Lightning Contrasts

Editor:

Ref: Service after sale

I recently updated my equipment from the ][+ to the *//e*. As a result, some of my purchased equipment and software were no longer fully compatible.

In contrast, I contacted two different companies and will list the results. Lightning Software (MasterType) of Palo Alto CA and Cider Systems Software (Master Key+) of Lincoln NE.

My MasterType program worked on the *//e* but would not use the full keyboard. I contacted Lightning Software and offered to pay for an update if one was available. Lightnings' reply, from Wendy Greenberg, was if I returned my disc with proof of *//e*'s purchase, they would forward me the update at no charge. With no proof of purchase they would update for $6.00. This I feel is a very consumer orientated company that deserves praise.

In contrast, I advised Cider Systems Software (Master Key+) that their device was not compatible with the *//e*. At the same time I asked if they had an update for the *//e* or if I could return the device with a service charge. I am fully aware that they have no obligation but felt that the least I deserved was a letter in reply, which I am still waiting for.

*Doug Nielsen*
9 Connaught
Welland ONT., Canada L3C 1G1

## GPLE Typeahead

Dear Val,

I just ran across some anomalous behavior of Applesoft while using GPLE. I have not seen any reference to the particular situation, which occurred in the use of a WAIT statement. I use that particular statement quite often, since I like the appearance of the screen without a cursor while awaiting input, in many cases.

I was using the following line in a subroutine:

```
2200 VTAB 23: HTAB 10: PRINT
"ANY KEY TO CONTINUE": WAIT
-16384,128: POKE -16368,0: HOME:
RETURN
```

It so happened that the next statement following the subroutine call was an INPUT statement, and I found that if the key pressed in the subroutine were a RETURN, this was accepted as a null string input.

I found this very unsettling, as I thought I knew very well how the WAIT statement worked. I finally tried the program after rebooting, and it worked fine, so I tried it again with GPLE back in — same problem. I then tried it with PLE instead, and there was no problem. I hope this observation will be of help to someone else who uses the WAIT statement.

*J. Morris Prosser*
3157 Indian Village Rd.
Pebble Beach, CA 93953

*THE BEHAVIOR OF GPLE THAT YOU mentioned can be attributed to the typeahead feature which of necessity must look for a carriage return as end of Input. Since neither GET, WAIT or a direct keyboard read require a carriage return, GPLE just "soaks them up" until 32 characters have been typed. The solution is to run GPLE's "CONFIG" program to disable the typeahead.*

## Not Over his Head

Dear Val,

I just received my copy of All About DOS and am pleased to find that the quality and diversity of the articles is extremely high. The value of any one of a number of the enhancements or utilities is worth several times the cost of the book and disks. Aside from one minor problem, I was particularly taken with Lee DeRaud's "Cutting Down on Overhead" which was very thought provoking. The difficulty that I encountered was after using the SAVEDOS program, booting the modified DOS disk would not run the HELLO program.

A short investigation into the internals of DOS lead to the CMDINDX byte ($AA5F) that DOS uses to decide if a boot has just completed. This byte must have a value of $00, the index of the INIT command. The simple addition of an STA $AA5F after line 37 in the SAVEDOS program fixed the problem. This information may prove helpful to anyone creating modified copies of DOS.

While investigating the DOS internals, I came across an interesting routine, PUTDOS, which is called from the INIT command to copy DOS to a disk. The following sequence makes use of this routine and can be utilized to write a "not too modified" DOS to a preformatted disk.

```
VERIFY name of hello program
CALL -151
B5BC:9D
AA5F:00 N AEFFG
```

The sequence must be entered exactly as shown or strange things happen. Maybe this qualifies as a "So What Did You Expect From DOS".

*Marsh Barton*
425 Florida Lane
Winfield, IL 60190

Answers from page 38

Apple Art

Jack H. Bender

1) A is HCOLOR =
2) G is SCALE =
3) H is RUN
4) F is TAN (ouch)
5) J is HIMEM:
6) I is POP
7) E is SIN
8) B is PEEK
9) D is Applesoft
10) C is BELL

## Cryptic Letters

Dear Val;

The April issue of *Call –A.P.P.L.E.* contained two articles concerning data encryption. These articles present methods which span the range from reasonably secure to highly insecure.

The article by James Paul presents a method of encryption developed under the fallacious impression that the more steps you take to encrypt something, the more secure it is. This is sometimes true, but not in this instance. Due to the properties of the exclusive–OR operation, all of the steps can be "collapsed" into one. Effectively, exclusive–ORing by each letter of "ENCRYPTION" is equivalent to exclusive–ORing once with a value of $0F. This method is therefore a monalphabetic substitution. As a means of ensuring privacy of data, it is virtually worthless, despite Mr. Paul's expectations to the contrary.

A monalphabetic substitution (where each letter is replaced by only one equivalent) has no real security at all. One of the measures of cryptosystem security is the unicity point, which is defined as the amount of text someone breaking the cipher needs in order to produce an unambiguous decryption. The unicity point for a monalphabetic substitution (with English as the enciphered language) is 28 letters. In practical terms, a monalphabetic substitution can usually be broken with fewer letters than that in the cipher message. This encryption method, therefore, is insecure to the point that it is worse than useless for people with no cryptologic expertise, since it could provide them with a false sense of security than "the data is encrypted and therefore safe." In addition, it is not hard to choose useless keys for this method. As an example, the use of the word "FRIENDLIER" as a key will result in no encryption whatever.

For encryption of executable files rather than text, this method could be used, and is a worthwhile idea for protecting programs under development, since the redundancy in a machine–language program is much lower than in English. However, there is sufficient structure in a BASIC file (Integer or Applesoft), that someone who wanted to would probably have enough information to break this scheme even without textfiles. Also, if it is known that the method of encryption is by exclusive–ORing, there are only 256 possible keys, so an exhaustive search is feasible to use in breaking this cipher. I would also recommend using a better scheme than this for protecting assembly language source files, if a machine–language program is what you are developing and want to protect.

The second article, by Skene Moody, shows a method which is much more secure. Using a pseudo–random number generator as the key to a stream cipher (one where the letters are encrypted one at a time) provides a good degree of security. The key produced is an approximation of a Shannon–Vernam keystream, which is a theoretically unbreakable cipher under certain conditions. The closer to true randomness the generator comes, the closer to an ideal Shannon–Vernam keystream the output is.

There are two conditions which must be met for encryption based on a Shannon–Vernam keystream to be theoretically unbreakable. First, the keystream must be at least as long as the longest message to be encrypted, to prevent keystream periodicity from providing information to a cryptanalyst. Since the pseudo–random numbers from the Hare/Russ/Faulkner routine are generated as needed, this condition is met. The other condition is that each keystream be used only once. This is the killer. If several textfiles are encrypted with the same key, statistical tests can be used to reconstruct the keystream, allowing the encrypted messages to be read. If a different key is used for each file to be encrypted, this can't be done.

I have two suggestions for improving the security of this scheme. First, add another parameter to the key: how many random numbers to generate from the seed before starting the encryption. If the numbers used are not too small and close together, this effectively provides different key sequences to be used. Probably the best way to do this is to multiply this parameter by a specified value (preferably a reasonably large odd number). Second, use as the seed a series of numbers calculated from the name of the file. If you set up your calculations properly, you can get a good "spread" of seeds from different filenames.

Then all you need to do is remember how to calculate the seed from the filename, and be sure not to change any letters in the filename which are significant to the calculation. This will allow you to use a different key for each file, which will improve the security of your information, but it requires that your method of calculating the key be simple enough to remember.

It also means that changing the filename could cause you to lose your data, since you will have lost the correct key. For example, if you have a file named "INNERMOST THOUGHTS," and you calculate the seed based on the 3rd, 5th, 9th, 14th, 15th, and 17th letters, you are restricted as to which letters you can safely change, as well as how long your filename must be as a minimum. You will, however, have data which is more secure.

Some good general references on the subject are:

*The Codebreakers,* by David Kahn, Macmillan, 1967. This book is an excellent history of codes and ciphers, and gives some methods of solution.

*Cryptanalysis,* by Helen F. Gaines, Dover, 1956. This is a new printing of a book originally printed in 1939, which explains how to solve monalphabetic and polyalphabetic ciphers, number ciphers, and a little on polygraphic ciphers such as the Playfair.

*ACM Computing Surveys,* December 1979. This is a special issue on cryptology, and contains articles concerning the change in cryptographic methods caused by the advent of the computer, symmetric and asymmetric encryption methods, and the use of pseudo–random number sequences in encryption.

*Cryptography in the Field, Part I,* by John P. Costas, BYTE, March 1979. This article provides a general overview of encryption methods. Part II contains a field cipher using the HP–67 as the encryption device. The same issues of BYTE contain a two part article on the DES encryption method, with a software implementation for the 6502, by Robert V. Meushaw.

*Scientific and engineering problem–solving with the computer,* by William Bennet, Jr., Prentice–Hall, 1976. Chapter 4 is devoted to various topics related to language. The section devoted to cryptography includes the framework for a BASIC program which will automatically "solve" monalphabetic ciphers.

Other specific references would include William Friedman's books and monographs on cryptanalysis, and the April 18 issue of Infoworld.

I would recommend that anyone who wants to become informed concerning ciphers, read at least the first two references. Neither of them goes into statistical methods in any depth, but Kahn's book is invaluable in learning about cryptology and cryptanalysis, and Gaines' book will show you how to do cryptanalysis, although it is limited to those cryptosystems that are feasible for use with pencil and paper as the encrypting device.

*Steve Wheeler*
6031 W. 76th Ave.
Westminster, CO 80003

# WRITE A.P.P.L.E.

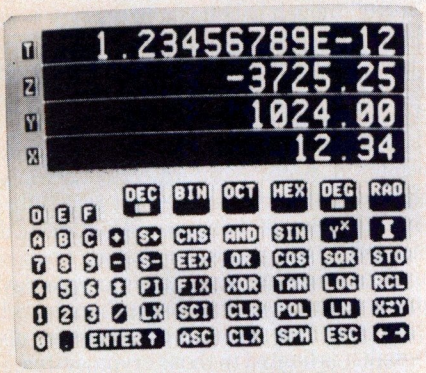
Dear Sir,

I would like to clear up a misconception about the data encryption scheme discussed by James Paul in the April *Call –A.P.P.L.E.* It should be obvious that the result of ten exclusive–or's on a data byte is the same as one exclusive–or using the product of the ten items. i.e. for the example given in the article, the result is the same as one exclusive–or by $0F. This is true for any data byte. Thus there can at most be 256 codes (128 if the high bit is always set to clear), hardly a secure code. If on the other hand you EOR the first byte with $45("E"), the second byte with $4E("N"), the third byte with $43("C"), and so on, repeating the key as necessary, you will get a much more secure code.

*Mike C. Mayberry*
555 Pierce #103
Albany, CA 94706

*THE LETTERS ABOVE were typical of several we received regarding Data Encryption Techniques. Comments received also suggest that Skene Moody's program provides a higher degree of security. Author Paul's response follows.*


**FOR THE APPLE II®**




**HI-RES VERSATILE CALCULATOR™**

**Powerful tool for Teachers, Programmers, Engineers**

- **Over 50 functions** - arithmetic, scientific, engineering, statistical, ASCII codes, & more
- **Comprehensive User's Manual** - features large Tutorial section. Comes in 3-ring binder.
- **Operates in 4 Bases:** Decimal, Octal, Hex, Binary
- **Instantaneous Results using RPN Operation**
- **Highly Visual Display** in color or B/W
- Features Internal Text Reference Guide
- Demo Program included

Requires 48K, disk drive, ROM Applesoft
$59.95 + $2.00 handling (FL res. add 5%)

Check your local dealer or CONTACT:

TACKABERRY SOFTWARE
P.O. Box 2857
Ormond Beach, FL 32074
Phone: (904) 677-2054

® Registered Trademark of Apple Computer, Inc.

Circle 36 on Reader Service Card


Dear Editor:

I have received some criticism for proposing use of a rather simplistic data encryptation scheme in my article "DATA ENCRYPTATION TECHNIQUES" in your April issue. The method I described in that article uses successive exclusive–or operations upon a user–entered password.

The uppermost reason for using such a simple encryptation routine was to allow the entire routine to fit within the Disk Operating System, and make it completely transparent to other software. The routine, although very simple, protects programs quite effectively against tampering and casual piracy. The reason I wrote the routine was to keep fellow students in my high school classes from pirating my programs and work. It has worked very well.

The comments I received were correct as to the mathematical simplicity of reversing what my routine does. As a practical matter, though, it is much harder to restore an encrypted Apple file than you might think. Because all file bytes, including pointers, are encrypted, the Apple usually "hangs" at the beginning of a load. While it is true that a single code from 0 to 255 will decrypt a file, the code–breaker must be able to figure out how to get that code in the right memory location to do the job.

No encryptation technique is completely safe from someone with the knowledge needed and desire to break it. My priority was to make the entire routine reside within DOS, so it would be compatible with all DOS 3.3 software. Many more sophisticated mathematical algorithms are available to use, but a routine that is always present, easy to use, and memory–efficient is hard to find. An alternative to a simple routine would be a hardware device in a slot, or between the disk drive controller and drive, to do encrypting.

The importance of your data should determine the complexity of your encrypting routine. If throwing up a simple roadblock stops the people you want to stop, a simple routine such as mine can be incredibly effective. Examples could be teachers who want to protect tests from student previewing, people protecting personal information, letters, etc., from friends and/or family, and students protecting their work from other students. (In the latter case, even though it is wrong to steal someone else's work, it does promote learning and creativity to try.)

An encrypting routine can be compared to an ordinary door lock. Most people assume they can't get in simply because the door is locked, even if most locks are simple to pick by an expert with the knowledge and desire. When a file is encrypted, most people accept the fact that their skills are not up to the task of decrypting it, and go on with their lives. If your programs and data must be kept away from experts, you should consider other encrypting methods.

I firmly believe that there is a place for simple data encryption that is automatic and provides defense against most snooping problems. EORing data with a password as it is sent to the disk is an effective option in many situations.

*James L. Paul*
513 W. A St.
Tehachapi, CA 93561

## A New Base

Dear Val,

Chris Jochumson's article of Arcade Graphics Techniques in the April issue is very interesting. However, I came up with a much shorter BASE ADDRESS CALCULATION ROUTINE when I was developing a program last year, and I hope your readers might find it useful. Upon entry, the line number should be in the accumulator, and it will return the base address in $00 and $01.

```
300-  A8       TAY
301-  29 C7    AND   #$C7
303-  85 00    STA   $00
305-  09 08    ORA   #$08
307-  85 01    STA   $01
309-  98       TYA
30A-  0A       ASL
30B-  0A       ASL
30C-  66 00    ROR   $00
30E-  0A       ASL
30F-  26 01    ROL   $01
311-  66 00    ROR   $00
313-  0A       ASL
314-  26 01    ROL   $01
316-  0A       ASL
317-  66 00    ROR   $00
319-  60       RTS
```

The above routine takes up 26 bytes and 53 cycles.

Let me take this chance to say thank you for the work of you and your team.

*Harry Cheung*
PMB 1601, Onitsha
Nigeria

# Can you tell the IBM® from the Transtar 130?

A

Letter quality
standard of
the industry

5x magnification

B

Letter quality
standard of
the industry

5x magnification

One of these two print samples was generated by an **IBM Selectric II:** the letter quality standard of the industry.

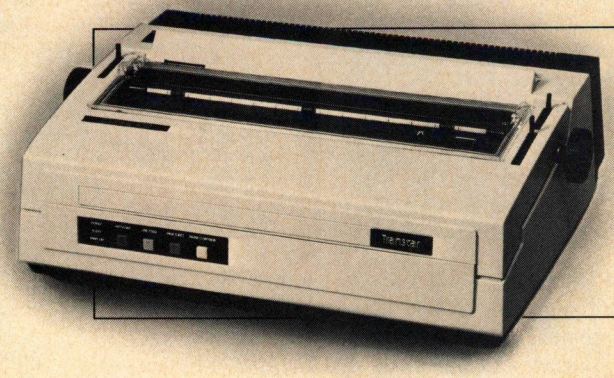
The other was generated by the new **Transtar 130** letter-quality printer.

And print quality is just the beginning! The new Transtar 130 daisy wheel printer is also plug-and-go compatible with the best-selling word processing packages! It features bidirectional printing, superscript, subscript, underlining and a true boldface. Retail price? **Only $895.**

Quietly producing copy at 18 cps Shannon text speed, the Transtar 130 also features a unique autoload button to make printing on letterheads a breeze! Three new daisy wheels have just been made available for the 130 from your dealer: letter gothic (shown), script, and a 15-pitch "gothic mini"—perfect for printing spreadsheets to fit on one page!

Offering an end-user warranty period of a full six months, the Transtar 130 is an extraordinarily reliable machine. Its minimal failure rate runs less than 1%, but if your 130 should ever need repair, a nationwide network of authorized Transtar service centers stands ready.

Have you decided yet whose type is whose? If you picked A...You picked Transtar. The **new** standard for letter quality printing.




**Transtar**

P.O. Box C-96975, Bellevue, WA 98009

IBM is a registered trademark of International Business Machines, Inc.

Circle 31 on Reader Service Card

# TOMORROW'S APPLES TODAY

Kevin O. Donohoe/editor

**NOTE:** These products are presumed to be state-of-the-art. Call -A.P.P.L.E. does not necessarily endorse products published in this column as we have not tested them.

## WRITE AWAY

Write away, an advanced, full function word processing system for the Apple *IIe* represents the optimum balance between speed, power and ease of use. The programs will also work on any Apple ][ with 48K of memory. Write Away is suitable for home and commercial applications and will utilize the features of any printer. Included with the system is a mail-merge/form letter feature capable of handling conditional text. Also included are utilities that allow the user to create mailing lists from popular data bases for use with the mailmerge feature.

Write Away comes unprotected and creates ordinary Apple DOS text files which are read into the 28K+ buffer faster than any other word processor. Search and replace operations are the fastest ever implemented on the Apple.

Documentation includes both on-screen and written tutorials which enable the user to become proficient with basic word processing functions in a minimal time frame. The easy-to-use manual, which comes in a handsome padded vinyl loose-leaf binder, is supported with multiple examples, a 14 page index with extensive cross-references and a stand-up Command Reference Card.

Write Away supports a vast array of formatting commands which allows for the creation of almost any type of document. The unique "CALL" command enables the construction of any document length or a combination of standard paragraphs from a master control file. Multiple commands can be combined in a single macro command and executed locally or globally. Blocks of text can be moved or replicated quickly and easily.

When running on an Apple ][ or ][+, Write Away requires 48K of memory and one disk drive. Systems with 64K of memory are able to take advantage of a special feature which permits instant switching between the editing and formatting programs. The program also recognizes all popular 80-column cards, including those for the Apple *IIe* without the need for a separate configuration routine.

Development and testing of the package took place over a three year period and included law office applications, newsletter preparation, U.S. government office use and program development applications.

Suggested retail price is $175.00.

Published by Midwest Software Associates, P.O. Box 301, St. Louis, MO 63074. Telephone (314) 997-6570 or (800) 835-2264 EXT. 467.

## MUSIC PROGRAMS FOR THE APPLE COMPUTER

Music Programs for the Apple Computer is a comprehensive directory of computer-assisted instructional materials in music. It provides 26 pages of information about software and hardware currently available for use with the Apple ][ Plus computer.

Copies of this directory are available for $5.00 each, including first-class shipping. (2.5 copies, $4.00 each; 6-10 copies, $3.50 each; 11+ copies, $3.00 each.) Please make checks payable to Denis C. Moreen and send orders to Denis C. Moreen, College of Notre Dame, Belmont, CA 94002. For further information, call (415) 861-2871.

## SKELETAL MUSCLE ANATOMY AND PHYSIOLOGY

Skeletal Muscle Anatomy and Physiology is designed to aid high school and college courses and features:

- a high degree of student interaction and involvement
- text illustrated with high-resolution color graphics
- 5 tutorials with separate glossaries
- random selection of 10-question multiple-choice tests with immediate feedback
- random selection of 25 to 50-question comprehensive exams with immediate feedback and diagnostic assessment
- listing of three highest scores

**Description**

Skeletal Muscle Anatomy and Physiology contains 5 tutorials on three disks:

1) Three muscle categories
2) Skeletal muscle microstructure
3) Sliding filament theory
4) Skeletal motor units
5) Muscle lever systems

Biosource Software, 2105 S. Franklin, Suite B, Kirksville, Missouri 63501, (816) 665-5751.

## PRINTER CONTROL PROGRAM

A new *Dot Matrix Printer Control Program* has been released by PRO/PAC of Houston that allows microcomputer users to set up their Dot Matrix Printer to print in bold face type, compressed characters, variable line spacing, slashed zeroes, elongated characters and other modes. The program eliminates the need to enter long strings of printer control codes in order to change printing modes. Completely menu driven, the program will send printer control codes at the touch of a key. Included with the program is a fully typeset Operating Manual explaining in detail how to use the program. The Operating Manual also includes instructions on programming the printer in BASIC, and other programs such as Apple Writer and VisiCalc®.

The program is now available for the new Apple Dot Matrix Printer, the Epson MX 80/100 Printers, and the IBM Dot Matrix Printer. Computers supported by the program include the IBM PC, Apple ][+, Apple /// (in native mode) and the new Apple *IIe* computer. Priced at only $24.95, the program can be ordered direct from PRO/PAC, Inc., 14925 Memorial Drive, Suite 105, Houston, Texas 77079 or call (713) 496-1179. Add $2.00 for shipping and handling if ordering direct. Check or Visa/Master Cards accepted. Dealer inquires invited.

## PASCAL SUPER EMULATOR

Legend Industries, Ltd. introduces the Pascal Super Emulator for the Legend 64KC, 128KDE and new 1 Mega-byte S, Card. This Software package is used in conjunction when the Apple Pascal 1.1 Operating System. The Legend Pascal Super Emulator Software package allows you to utilize multiple Legend RAM cards up to a maximum of four (4), with capability of combining the total RAM into one drive. Four 128K cards can yield up to 1024 blocks of storage as one large drive.

The Pascal Super Emulator comes complete with disk and manual. The package is available at your local dealer now.

Legend Industries, Ltd., 2220 Scott Lk. Rd., Pontiac, MI 48054, (313) 674-0953.

MORE INFORMATION about the products and services in this issue FREE!

Just circle the number and fill out the card. (Note: card expires three months following month of publication.)

## READER SERVICE CARD

**Free Information on the items circled**

Card Expires September 30, 1983 (7-83)

| | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 13 | 14 | 15 | 16 | 17 | 18 | 19 | 20 | 21 | 22 | 23 | 24 | 25 | 26 | 27 | 28 | 29 | 30 |
| 31 | 32 | 33 | 34 | 35 | 36 | 37 | 38 | 39 | 40 | 41 | 42 | 43 | 44 | 45 | 46 | 47 | 48 | 49 | 50 | 51 | 52 | 53 | 54 | 55 | 56 | 57 | 58 | 59 | 60 |
| 61 | 62 | 63 | 64 | 65 | 66 | 67 | 68 | 69 | 70 | 71 | 72 | 73 | 74 | 75 | 76 | 77 | 78 | 79 | 80 | 81 | 82 | 83 | 84 | 85 | 86 | 87 | 88 | 89 | 90 |
| 91 | 92 | 93 | 94 | 95 | 96 | 97 | 98 | 99 | 100 | 101 | 102 | 103 | 104 | 105 | 106 | 107 | 108 | 109 | 110 | 111 | 112 | 113 | 114 | 115 | 116 | 117 | 118 | 119 | 120 |
| 121 | 122 | 123 | 124 | 125 | 126 | 127 | 128 | 129 | 130 | 131 | 132 | 133 | 134 | 135 | 136 | 137 | 138 | 139 | 140 | 141 | 142 | 143 | 144 | 145 | 146 | 147 | 148 | 149 | 150 |
| 151 | 152 | 153 | 154 | 155 | 156 | 157 | 158 | 159 | 160 | 161 | 162 | 163 | 164 | 165 | 166 | 167 | 168 | 169 | 170 | 171 | 172 | 173 | 174 | 175 | 176 | 177 | 178 | 179 | 180 |
| 181 | 182 | 183 | 184 | 185 | 186 | 187 | 188 | 189 | 190 | 191 | 192 | 193 | 194 | 195 | 196 | 197 | 198 | 199 | 200 | 201 | 202 | 203 | 204 | 205 | 206 | 207 | 208 | 209 | 210 |

**1. What kind of product(s) are you likely to buy in the next three months?**

A. ☐ Hard Disk
B. ☐ Increased Capacity Floppy Disk
C. ☐ Apple Compatible Floppy Disk
D. ☐ Computer
E. ☐ Printer
F. ☐ Modem
G. ☐ CRT

**2. More information on Apple PugetSound Program Library Exchange?** A. ☐ Yes B. ☐ No

Name _____

Company _____

Address _____ City _____

State _____ Zip _____ Phone _____

## Call —A.P.P.L.E. Reader's Choice

Help us help you. By filling out and returning this card, marked with your preferences, you can guide us in selecting material tailored to your needs. Just place the numbers from 1 to 10, in order of preference, in the appropriate boxes. Please do not choose more than 10 features. A.P.P.L.E. members who include their membership number, will have their names placed in a drawing for $100 credit toward any A.P.P.L.E. product. Drawing will be held September 19, 1983. The top scoring author will also receive a $100 cash bonus.

☐ 1 **80-Col. Low-Res Graphics for //e** Rob Moore
☐ 2 **"Betcha Dollars to Apples..."** Peter C. Lincoln
☐ 3 **The Inside Story** Chris Green
☐ 4 **30 Crates of Apples** Wes Felty
☐ 5 **Arcademic Skill Builders** Kathryn Hallgrimson Suther
☐ 6 **Apple Blossoms** Val J. Golding
☐ 7 **Apple Art** Jack Bender
☐ 8 **Confessions of a Cheapskate** Alan D./Valerie A. Floeter
☐ 9 **Northern Spy** Rick Sutcliff
☐ 10 **Parkinson's Law** Robert A. Greenwald
☐ 11 **A.P.P.L.E. Doctor** Bruce Field
☐ 12 **Enhancing Your Apple** James Hockenhull
☐ 13 **Grappler+/MX80 with Graftrax** Ken Kashmarek
☐ 14 **The Game of Life** Val J. Golding
☐ 15 **Write -A.P.P.L.E.** The Readers
☐ 16 **Tomorrow's Apples Today** Kevin Donohoe
☐ 17 **Writing the Wrongs** The Wrongdoers
☐ 18 **Editor Bytes Back** The Editor
☐ 19 **Bytes From A.P.P.L.E.** Val J. Golding
☐ 20 **Boot** Craig MacIntosh
☐ 21 **So What Did You Expect Dept.?** Garth Baulch

Name _____ Address _____ Memb. # _____

**A.P.P.L.E. employees ineligible for prizes. Void where prohibited by law.**

## Act Now! Join!

## A.P.P.L.E.

**A**pple **P**ugetSound **P**rogram **L**ibrary **E**xchange

The **World's** Largest Apple Computer User Group

Be a part of the over 18,000 A.P.P.L.E. members and you'll receive:

- 12 issues of **Call —A.P.P.L.E.** magazine. The nation's premier Apple computer publication.
- Substantially reduced prices on sophisticated software, hardware, publications, and services.
- Access to the A.P.P.L.E. closed user group on the **SOURCE.** Excellent for information exchange and program downloading.
- **Call —A.P.P.L.E.** Hotline.

**ALL THESE BENEFITS AND MORE FOR ONLY $45!**

Detach and mail the Business Reply Application Form. →

☐ Please send me an A.P.P.L.E. Apple-cation and information.
☐ $45.00 payment enclosed.
☐ Mastercharge/Visa

$25.00 First time fee
20.00 First year dues
$45.00 Total dues

MasterCard # _____ Exp. Date _____

VISA # _____ Exp. Date _____

Name _____

Address _____

City _____ State _____

Zip _____ Phone _____

**A.P.P.L.E., 21246 68th Ave. S., Kent, WA 98032**
**(206) 872-2245**

First Class mail for **Call —A.P.P.L.E.** add $15. Otherwise third class mailed free as part of membership in U.S.A.

**Additional Airmail postage required for foreign memberships and shipments.**

Additional membership postage:

- Canada, West Indies, Central America, Columbia, Venezuela and Mexico — Add $15.00 ($60.00 total)
- All S. American countries (except above), Europe, and N. Africa — Add $21.00 ($66.00 total)
- Asia, Mid East, S. Africa, Australia and Pacific Islands — Add $27.00 ($72.00 total)

All orders must be prepaid in U.S. funds only.

**Apple PugetSound Program Library Exchange**
The WORLD'S largest Apple Computer user group

NO POSTAGE
NECESSARY
IF MAILED
IN THE
UNITED STATES

**BUSINESS REPLY CARD**
FIRST CLASS PERMIT NO. 217 CLINTON, IA

POSTAGE WILL BE PAID BY ADDRESSEE

**Call —A.P.P.L.E.**
P.O. Box 1993
Clinton, IA 52735

NO POSTAGE
NECESSARY
IF MAILED
IN THE
UNITED STATES

**BUSINESS REPLY CARD**
FIRST CLASS PERMIT NO. 32 KENT, WA

POSTAGE WILL BE PAID BY ADDRESSEE

**Call —A.P.P.L.E.**
21246 68th Ave. S.
Kent, WA 98032

NO POSTAGE
NECESSARY
IF MAILED
IN THE
UNITED STATES

**BUSINESS REPLY CARD**
FIRST CLASS PERMIT NO. 32 KENT, WA

POSTAGE WILL BE PAID BY ADDRESSEE

**A.P.P.L.E.**
21246 68th Ave. S.
Kent, WA 98032

# In Depth Magazine Specials

- **All About Applesoft**© Regular Member Price $7
- **All About Pascal** © Regular Member Price $11
- **All About DOS** © Regular Member Price $13.50

Get all three for only **$25.00 (Reg. $31.50).** Overseas shipping wt. 3lbs. 8oz.

# In Depth Diskette Special

Get all diskettes of programs appearing in **In Depth Volumes I, II, III** for only **$40.00.** (Regular Member Price $51.50)
Overseas shipping wt. 3.5oz.

# Non-members Join Now!

For only **$45.00** ($25.00 one time only, $20.00 first year dues) be a member of the largest Apple Users Group. Take advantage of these and more great **A.P.P.L.E.** offers.

**This offer available to A.P.P.L.E. Members Only! Specials end August 31, 1983.**

- In Depth Magazine Special $25.00 (Reg. $31.50) Overseas shipping wt. 3lbs.8oz. (PSID)
- In Depth Diskette Special $40.00 (Reg. $51.50) Overseas shipping wt. 3.5oz. (SSIN)
- For only $45.00 I want to join the largest Apple Users Group. ($25.00 one time, $20.00 first years dues — New foreign members require additional mailing costs)

Place quantity in box if ordering more than 1 set.

**Mail to: A.P.P.L.E. ORDERS**
**21246—68th Ave. S.**
**Kent, WA 98032 (206) 872-2245.**

Total amount enclosed $ _____ Washington residents add 7.9% sales tax. Overseas postage, See order form on page 79.

Membership Number _____ Expiration Date _____

Name _____

Address _____

City _____ Phone _____

State _____ Zip _____

Visa, MasterCard, Check or Money Order accepted.

☐ Visa # _____ (expiration date) _____

☐ MasterCard # _____ (expiration date) _____

Signature _____

# TOMORROW'S APPLES TODAY

## VOICE INPUT MODULE

### Description

This is an exciting and practical new product for use on your Apple ][® computer. No longer must you be tied to your keyboard as you now have freedom to speak to your computer. The intelligent Voice Input Module, VIM, allows anybody to speak isolated words or phrases to their computer and have it respond in digital form. The VIM converts spoken words to commands for your application program.

The Voice Input Module is highly accurate and easily installed. It provides the latest advances in voice recognition and electronic components at an affordable price. The Voice Input Module represents a true breakthrough in the application of voice technology to personal computers.

### Applications

The VIM is designed to allow voice input with any existing Apple application software including: data base management, word processing, graphics, business, education and games. Many useful application vocabularies such as Applesoft Basic, Visicalc, Pilot, Controller, etc. can easily be generated.

The VIM includes four vocabulary files to allow immediate usage. These are Alphadigits, Blackjack, Magic Window and Apple Pie. The Alphadigits vocabulary shows one method for using voice to act as a keyboard. This vocabulary may be quickly trained and demonstrates the accurate performance of the VIM. In addition the Alphadigits vocabulary is useful for handicapped persons, financial management and real-time data entry.

### Voice Utility Software for Apple ][

The VIM interactive voice Utility Program features:

- Build and Edit Vocabulary
- Train Vocabulary
- Recognize
- Test

The Apple Voice Utility Software is a menu driven user friendly program, written in BASIC, which allows you to rapidly build and edit a vocabulary for any specific application software you select. You define two character strings, the first is the spoken word or phrase to be understood by your VIM, the second interacts with your application program in response to the spoken word or phrase. Once the vocabulary is defined, the menu for training the VIM to your voice pattern is selected and prompts you through the defined vocabulary, thereby generating a voice reference pattern for each word or phrase. These voice reference patterns are stored in your VIM memory. Next, you may select a menu to save your voice patterns and spelling of each vocabulary item on diskette. You then put your VIM to work by selecting the recognition mode and loading any application program. The VIM, your "third hand," now allows the Apple ][ to accept both voice and keyboard data.

The test mode is useful to validate the separability of any user defined vocabulary, test recognition accuracy, and to provide optimum rejection of out-of-vocabulary speech or other sounds.

Other features of the utility software provide operational flexibility including error detection, idle mode, vocabulary listing and instructional aid.

### VIM Specification Performance

Accuracy: 98%+ recognition accuracy for typical vocabularies up to 80 discrete word or phrases.
Response time: Less than 150 msec.
Reject threshold: User selectable
Word/phrase length: 0.1 to 1.25 records
Minimum between word pause: 160 msec.
Character strings per word: 2, user definable.
Onboard: 16 channel audio spectrum analyzer, high speed microcomputer, 8K bytes of RAM, 4K bytes of ROM
Mechanical form factor: Apple ][ compatible
Electrical: Bus compatible with Apple ][ Ribbon cable to keyboard

### VIM for Apple ][ Contains

1) VMC2020 Voice Input Module for Apple ][
2) Voice Utility Apple ][ software on diskette*
3) Noise-cancelling microphone with cable, plug and on/off switch
4) Users manual
5) One ribbon cable with connectors

Fully warranted by Voice Machine Communications

### Options

1) Headworn piece cancelling microphone with in-line switch
2) Footpedal microphone switch
3) Wireless microphone

** Diskette contains vocabularies to run Visicalc®, Wordstar®, and other popular programs. See "Applications" (Works great with Topo®)*

*For more information contact Voice Recognition Systems, 550 Battery, Suite 1716, San Francisco, CA 94111, (415) 788-2007*

## ADALAB CHROMATOGRAPHY AUTOMATION PACKAGE

Interactive Microware, Inc., announces the availability of its ADALAB™ Chromatography Automation Package for Apple ][ series microcomputers. This package features menu-driven Chromatochart™ software, together with IMI's popular ADALAB™ data acquisition/control interface card and IMI's new Chromadapt™ Chromatography Interface Module. With additional ADALAB cards and Chromadapt modules, Chromatochart software supports up to four channels of simultaneous data acquisition and control for GCs, HPLCs, etc. Chromatochart utilizes proprietary data compression algorithms that permit more raw data storage than any other Apple-based chromatography system. Chromatochart allows one to calculate, review, edit and store baseline information. Since the raw data are stored in memory or on disk, the user may re-analyze the data without repeating the experiment. Sophisticated integration routines not only measure the area of each peak, but also determine retention time, height, width at half height and symmetry. Measurements can then be compared to internal or external standard files and the results are summarized in a printed report. Since Chromatochart allows the operator to store data acquisition and analysis methods on disk, it is very convenient to repeat an experiment using the same method.

IMI's Chromadapt™ Chromatography Interface Module amplifies detector signals and provides binary gradient control of HPLC pumps, using Chromatochart software. Chromadapt is also equipped with 8 digital inputs and 8 digital outputs that can sense switch conditions, control valves, etc. At specific times during an experiment Chromadapt's variable scale D-A output permits playback of GC or HPLC data from computer memory to any analog stripchart recorder or integrator.

IMI offers the complete ADALAB Chromatography Automation System for $4490. Existing Apple ][ micros can be retrofitted for as little as $1645 for gradient HPLC or $1295 for GC data acquisition. For additional information, write Interactive Microware, Inc., P.O. Box 771, State College, PA 16801-0771 or call the IMI Sales Dept. at (814) 238-8294.

## PERSONAL WORK STATION UNDER $100.00

At a suggested retail price of only $99.95, the Personal Work Station from CE Software provides tremendous value for both dealers and consumers. Featuring a built-in file cabinet, key-lock storage area, a fold-away work surface and smooth-rolling casters, it's engineered to outperform computer furniture sold at twice the price — or more.

Designed for flexibility and built to last with heavy gauge steel and a baked enamel finish, the Personal Work Station takes up only 4.75 square feet of floorspace. It saves space for the consumer and saves space on the showroom floor. All units are shipped knocked-down for maximum efficiency in the warehouse.

The folding work surface attaches to either the left or right side of the storage module. All software can be kept securely in the key-lock compartment, while documentation is always nearby in the file cabinet. A matching printer stand is available at a suggest retail price of $44.95.

For more information, contact Richard Kirsner, CE Software, 801-73rd Street, Des Moines, IA 50312, (515) 224-1995.

## APPLE COMPUTER ANNOUNCES THE APPLE INFORMATION CENTER FOR DEALERS

Retail computer dealers can manage store traffic more effectively with a new in-store information center from Apple Computer. The interactive video unit frees dealer personnel to close sales, while providing browsers and computer novices with personalized attention.

The Apple Information Center operates with an Apple *IIe* personal computer, a laser videodisc player, a color video monitor with touch-sensitive screen, and a series of videodiscs produced by Apple and narrated by television personality Dick Cavett. By simply touching the screen, customers select from a wide range of video segments that answer basic questions about personal computer applications and Apple products.

### How the System Works

The Apple Information Center functions as an electronic information booth staffed by Cavett. The screen displays the Apple logo and the words "Touch Me." As the customer touches the display screen, Cavett instantly appears and invites the customer to choose from a list of topics. On Disc #1 this includes segments on word processing, information management, electronic spreadsheets, the Apple *IIe* personal computer, a catalog of Apple products, and a guide to personal computer applications.

After the customer touches one of the topics listed, a brief introduction by Cavett begins followed by a list of subtopics. For example, if the customer selects the topic "Word Processing," a list of subtopics—"cursor magic," "making changes," "glossary," "text search," and "applications"—is displayed. When the customer touches the screen again, a specific video segment begins to play.

Using the same touch method, the customer can continue to select as many topics and subtopics as desired. When the customer is finished, the Apple name and logo, and the words "Touch Me" return to the screen.

### Price and Availability

The Apple Information Center includes a Pioneer industrial videodisc player, a 13-inch touch-sensitive color monitor, a sturdy metal cabinet, and interfacing equipment. The center's one-piece cabinet includes a display unit with a nonglare plexiglass cover and a riser card that lists the information available on the system. The dealer adds an Apple *IIe*, serial interface card, and Disk II floppy disk drive to complete the system.

The system is available in the United States through a three-year, noncancelable lease from Apple. A three-year service agreement is included. All videodiscs will be supplied free to dealers who lease the Apple Information Center.

Apple Computer, Inc., 20525 Mariani Avenue, Cupertino, CA 95014, (408) 973-2042 or Regis McKenna Public Relations, 1800 Embarcadero Road, Palo Alto, CA 94303, (415) 494-2030.

## PROFESSIONAL SOFTWARE

Sophisticated Software is a division of P.M.S. Inc. which has been developing professional software for the Medical and Dental fields for the past four years. Sophisticated Software draws on our experience and makes "miracle" software available for the first time at prices everyone can afford. We are introducing seven new software packages that enable the user to maximize their Apple computer investment.

### The Little Black Book

The Little Black Book is the ultimate in sophistication and simplicity. You don't need a Ph.D. in computer science to operate this program. Ideal for the professional, the person about town, or anyone who wants to maintain a "little black book" of names and notes electronically. You can make notes, schedule appointments, have your agenda for the day organized down to the minute. You don't even have to remember how to spell someone's name to find them, the system leads you right to it. The Little Black Book maintains client lists, but is much more than a file. You can add any number of notes to client files in any form you choose. These are all indexed by name and date. The real beauty of the system is in its ease of use. No thick manuals to read, no hours of practice, no long lists of special instructions to remember. Just turn it on, and go. Available for hard disks or single disk drive systems. The Little Black Book runs on the popular Apple ][ computer and sells for $249.

### Roll-A-File

Roll-A-File is a sophisticated way to store, retrieve and search through your electronic card file. Ideal for salespersons, businesses, or professionals who wish to keep track of their clients on a high speed electronic filing system. The program was designed by professionals who know *you* don't have the time to waste. Roll-A-File is extremely easy to use and simple to operate, yet allows you to get the most out of your microcomputer. This program allows you to search for clients according to specific criteria such as name, age, account number, zip code, etc. and retrieve them by any of your specific needs. Roll-A-File runs on the popular Apple ][ computer and sells for $79.

For more information contact, Sophisticated Software, 650 Foothill Blvd., La Canada, CA 91011, or call (213) 790-9052.

# TOMORROW'S APPLES TODAY

## ALBERT COMPUTER™

Who wants a new personal computer with all the capabilities of an Apple, plus a lot more, in an attractive and more convenient case? Perhaps you, after you see the new Apple compatible, Albert.

As you already know, Albert (which by the way is Albert the computer, not Albert the great scientist) is the new Apple compatible personal computer by Albert Computers, Inc. Some of Albert's standard features include a choice of 256 text or background colors. Very special effects include high resolution wipes, drops, slides, smears and on and on.

Albert has a calendar clock which provides months, days, hours, minutes and even seconds! Red, green and blue color guns are driven by separate analog electronics which produce pure RGB color. Albert's parallel and serial printer ports are both standard. Are you impressed yet? Wait, there's more!

Albert's communications are RS232 serial with full handshaking control and RS422/423 signal levels provide the gateway to the most popular networks. Your data is protected from unauthorized use by our data security. A battery back-up provides up to one hour of uninterrupted power. Albert even has a microphone input which listens and digitizes your voice. An optional touch-tone decoder decodes phone signals for remote control applications. Your voice output is heard internally/externally through telephone answering devices.

Are you always late for appointments because you have last minute things to do on the computer? If so, take it with you. Albert's AC/DC power supply allows you to plug it in anywhere (even your car). If you can find a plug, you can plug it in!

Even though I am not through telling you about Albert, I want to tell you about the software and hardware we are packaging with the unit. One of these things is the graphics power pad. This compact pad has all the positive features of both a mouse and a graphics tablet. Use your finger to create bar charts, pie graphs, line drawings, and even art! If you haven't already guessed, Albert includes 5 useful software packages: Magicalc (which works with the keyboard and the graphics power pad); Magic Window II; Magic Mailer; Magic Words and Magic Memory.

The Albert not only has an Apple game I/O built in but an Albert one too. This game I/O has not 4, not 6, but 8 inputs — 6 of which are available externally and 2 internally. One of these internal inputs monitors the battery status, the other one digitizes voice input. The Albert game I/O converts 5 volt analog signals to 8 bit binary numbers. A simple adaptor lets this game I/O be Atari compatible.

You would think with all these things built in we wouldn't have any expansion slots (would you?) Well, there are. In fact, there are five. These allow you to hook up things that we couldn't squeeze in.

If you need disk drives but don't have any, we have the perfect thing. A dual disk drive with diagnostic controller. That's not all, this little drive is only ½ the height of most disk drives and it is designed to match the Albert's stereo system styling. The front panel of this system is detachable which makes it easy to customize for OEM aaplications.

To top the unit off, we have a detachable keyboard so you lay in bed, eat and work, etc. . . as long as you can see a monitor or TV. The Taxan Analog RGB monitor works great with our system, text and graphics are crisp and clear.

Price: $1595.00. Albert Computers, Inc., 3170 Los Feliz Drive, Unit C, Thousand Oaks, CA 91362. (805) 497-1073.

## THE FAMILY CONNECTION

Discovery Software is proud to announce the release of a new, high-quality genealogical software system for the Apple series of microcomputers.

Under the name *The Family Connection,* the software will be primarily directed at both the novice and veteran family historian who needs help in organizing and maintaining their family trees. Priced at only $99.50, this powerful tool is priced within the budget of most any computer user.

The program boasts ease of use, professional quality software, as well as a large record capacity. The user may generate a number of reports, including pedigree charts, family group sheets, record indices, and numerous user-defined reports.

The Family Connection requires an Apple ][, ][+, or *IIe* computer (or Apple work-alike), 48K of memory, and two disk drives. A printer is recommended, but not necessary. The program and documentation are professionally packaged in a compact, padded binder that would make a welcome addition to any bookshelf.

More information on The Family Connection may be obtained by contacting Discovery Software. Liberal dealer discounts are available.

Discovery Software, P.O. Box 68821, Indianapolis, IN 68821, P.O. Box 9336, Cincinnati, OH 45209, (317) 291-1433.

## S' CARD

Legend Industries, Ltd. announces the introduction of the S' Card. The first RAM card to allow the user to upgrade from 64K to a full *1 Megabyte.* The card is compatible with the Apple ][, ][ Plus, *IIe* and the Apple /// computers. The S' Card can be installed into any slot and any multitude of cards can be installed into one machine. A total capacity of *7 Megabytes* can be added. The power and flexibility of this card make it the ultimate RAM card for the Apple computers.

All of the software written for the 64KC and 128KDE cards will work with the S' Card including all of the software from other software houses. New software being developed by Legend will take advantage of the added RAM capacity of the S' Card.

The best thing about this card is the fact that it can grow as the user grows, if the user needs more memory he/she can add chips to the card and increase the RAM content. Upgrade kits are available through local dealers from Legend.

Look for upcoming advertisement or ask your local dealer for more information today.

Legend Industries, Ltd., 2220 Scott Lk. Rd., Pontiac, MI 48054, (313) 674-0953.

## NEW FLIGHT & AIR TRAFFIC CONTROL SIMULATION

Mountain Pilot & Precision Approach Radar, available from Instant Software, simulates mountain flight and air traffic control in two separate programs on one disk.

*Mountain Pilot* — Test your wings with a flight simulation through a treacherous mountain pass on a dangerous mission to deliver supplies to the secluded miners of Goldtown.

*Precision Approach Radar* — Safely land aircrafts in dense fog. Controller must guide five different sizes of crafts (each craft represents a different difficulty level) ranging from a Piper Tri-Pacer to a UFO.

Completely documented and fully guaranteed, Mountain Pilot & Precision Approach Radar is $19.95 and requires Applesoft in ROM, 32K of memory, one disk drive and game paddles. Available from Instant Software, Rte. 101 & Elm St., Peterborough, NH 03458. Toll Free Number for orders: 1-800-258-5473.

# NIBBLE EXPRESS III
# YOUR APPLE* WILL LOVE IT!

## TABLE OF CONTENTS


Turtle Graphics ..... 8
Applesoft Line Cruncher ..... 14
TRAC Income System ..... 19
MAMA ..... 25
Amper Free Space Catalog ..... 26
Machine Language Editor ..... 27
Apple CALENDAR ..... 36
Peaceful Coexistence ..... 43
Apple Slugger ..... 43
Reverse Key ..... 45
Amper Find ..... 45
Bond Manager ..... 47
DOS 3 + 2 ..... 53
Amper Speed ..... 57
Apple Darts ..... 61
MicroCalc ..... 63
Variable Cruncher ..... 72
Life ..... 77
Apple Flash ..... 80
Checker ..... 81
GO- Greeting Program ..... 83
Quick Sort ..... 86
Applesoft Line Editor ..... 90
Othello ..... 96
SPRINT ..... 99
Disk Dump ..... 102
Hi-Res Colors ..... 103
Apple Record Command System ..... 104
Apple Art Gallery ..... 114
Game I/O Expmt ..... 119
Super Keypad ..... 123
Disk Commander ..... 125
Compare Applesoft ..... 132
Amp-L-Soft ..... 136
Electronic Message Center ..... 152
The Shape ..... 155
Disk Map ..... 159
Apple Bowl Football ..... 161
Apple Scroller ..... 167
Lower Case Letters ..... 168
Recipe Box ..... 170
Disk Doctor ..... 178
Quasar II ..... 182
DOS Command Entry ..... 189
MLE Driver ..... 189



## NOW AVAILABLE!

NIBBLE EXPRESS is an Anthology of the Major Articles and Programs appearing in Volume 3 of NIBBLE Magazine . . . nearly $400 worth of Programs for your Apple II, ACE, or other Applesoft-compatible computer!

NIBBLE EXPRESS III contains *up-to-date enhancements, KeyPerfect Tables*, and the *Best of NIBBLE!*

Even if you have all 8 issues of NIBBLE in 1982, you'll want the Express to have updated program listings in one convenient package! It's a MUST for your Library!

NIBBLE EXPRESS III is a bargain at $17.95 plus $1.75 Postage/Handling ($2.50 outside the U.S.).

YOUR APPLE WILL LOVE IT!
(And so will you!)

**NIBBLE**
P.O. Box 325
Lincoln, MA 01773

Yes! I want to reserve NIBBLE EXPRESS Vol. III for my Library! Here's my ☐ Check ☐ Money Order for $17.95 plus $1.75 postage/handling. (Outside U.S. add $2.75 for postage/handling).

☐ Also send me NIBBLE EXPRESS Vol. I at $12.95 Plus postage/handling (see above).

☐ Send me NIBBLE EXPRESS VOL. II at $14.95 plus postage/handling (see above).

Master Card & Visa Accepted

Card # _____ Expires: _____

Signature: _____

Telephone: _____

Please Print Clearly

Name: _____

Address: _____

City _____ State _____ Zip _____

Your check or money order must accompany your order to qualify. Outside U.S.: Checks must be drawn on a U.S. Bank.

*Apple is a registered trademark of Apple Computer Inc.
*ACE is a trademark of Franklin Computer Co.

**RAM DRIVE EMULATOR**
**"DRIVE 3"**

Use the extra memory in your Apple as a disk drive.

**$29.95** **$14.95**

- All DOS commands work the same
- 310 sectors of simulated disk storage with extended 80 col. card
- Incredibly fast
- Full package of utilities
- Fully copyable

VISA Order by phone or mail MasterCard

**Software Banc, Inc.**
**(414) 271-0100**

Select version:

☐ Apple IIe $29.95 - 310 sectors, requires extended 80 col. card

☐ 64K Apple $14.95 - 62 sectors, works with any 64K Apple

Name _____

Address _____

City _____

☐ I've enclosed payment. I understand there is no shiping charge for cash or check orders.

☐ Charge my: ☐ Master Charge ☐ Visa

Account # _____ Exp. date _____

☐ Send C.O.D.
Add $1.50 for shipping on charge and C.O.D. orders.

**1225 N. Water St., Milwaukee, WI 53202**

Circle 3 on Reader Service Card

BYTES & PIECES

***Extra Special!***
***Magic Window II***
***$149.95 - 103.96***

**$1.00 credit for all phone orders over $100.00**

| | List | Ours |
|---|---|---|
| **Bag of Tricks** | 39.95 | 29.56 |
| **Bug Byter** | 47.50 | 35.16 |
| **First Class Mail (FCM)** | 99.00 | 73.26 |
| **Graforth** | 75.00 | 55.49 |
| **Graphics Magician** | 59.95 | 44.36 |
| **Home Accountant** | 74.95 | 55.46 |
| **Logo (Krell)** | 89.95 | 76.46 |
| **Nibbles Away II** | 69.95 | 51.76 |
| **16 K Card (Microsoft)** | 99.95 | 77.96 |
| **Multiplan (CP/M or dos)** | 275.99 | 203.49 |
| **Super Fan II (w/zener ray)** | 109.00 | 80.66 |
| **Suspended** | 49.95 | 36.96 |
| **Tasc Compiler** | 175.00 | 129.49 |
| **Word Handler** | 199.00 | 147.26 |
| **Wizardry** | 49.95 | 36.96 |
| **Zaxxon** | 39.95 | 29.56 |
| **Zoom Graphics** | 49.95 | 36.96 |
| SPECIALS | | |
| **Dark Crystal** | 39.95 | 28.56 |
| **Rocky's Boots** | 49.95 | 34.96 |
| **SAM** | 124.95 | 90.46 |
| **Bank Street Writer** | 69.95 | 49.96 |
| **Wildcard** | 139.95 | 111.19 |
| **Screenwriter II** | 129.95 | 94.16 |
| **Replay II** | 130.00 | 107.19 |

C.O.D. • Money Orders • Certified Checks • Personal Checks Allow 2 Weeks • N.Y.S. Res. Add Sales Tax
U.S.-Orders Under $150, Add $2.00 P&H
All Canadian, U.S. Funds $3.00 P&H
Foreign, Charges Only, Min. P&H $6.00

**• SEND FOR FREE PRICE LIST #900 •**
**Source TCP637**

**BYTES & PIECES (516) 751-2535**
**Box 525 Dept. C • E. Setauket, N.Y. 11733**

Circle 2 on Reader Service Card

# WRITING THE WRONGS

the wrongdoers

HERE is a correction and some notes on my "DOS patch for 9–descending skew" as published on p. 92 of *Call –A.P.P.L.E. In Depth #3:*

Correction: Line 32 should LOAD Y with the address $1F, not the constant #$1F. $BCF2 becomes $A4 instead of $A0.

Notes:

1) Only disks *initialized* with the patched DOS will show a speed improvement.
2) Disks initialized with this patch will *not* achieve the speed potential of such modified DOS's as Hyper–DOS, Diversi–DOS, or Lee DeRaud's Speeddos (*Call –A.P.P.L.E. In Depth #3* p. 85). Disks init'ed with my patch will have to be *re–inited* with *standard DOS* to work with these programs, because my patch alters the "sector spacing" on disks it init's. This problem is alluded to in the next to last paragraph of Lee's article on p. 87 of *Call –A.P.P.L.E. In Depth #3.*

*Phil Bryan*
529 West St.
Park City, IL 60085

**BLOAD TIMES**

| DOS in memory | Standard or Phil's Patch | Standard or Phil's Patch | Hyper DOS | Hyper DOS |
|---|---|---|---|---|
| Disk Initialized by | Standard | Phil's Patch | Standard | Phil's Patch |
| BLOAD time | 27 sec. | 15 sec. | 7 sec. | 15 sec. |

## Spelling Corrector Correction

There are a number of corrections and some additional explananation that apply to Spelling Corrector in the May issue. Line 980 appeared in error and should be deleted. It prevents the processed file from being saved to disk.

The INPUT variables in line 840 and the PRINT variables in line 1040 should match. Only the variable "I", which specifies the number of lines is essential; the others were those used by the author for his convenience. Each variable used in lines 840 and 1040 must have matching data at the beginning of your text file. The use of the variable I may be eliminated by setting I equal to 500 in line 840 and adding an ONERR GOTO handler that will check for END OF DATA in line 880, then setting I to equal X when the error is encountered.

Finally, line 1080 will print a quote (") at the beginning of each line of the re–written file, thus line 1080 may be shortened to:

**1080 PRINT L$(X)**

## Painting the RAMcard

RAMPIX, Page 52, *Call –A.P.P.L.E.*, May, 1983 has an error in line 82 of the source code which prevents a proper transfer of the picture. It can be corrected by changing that line to read HEX EAEA, or if you are not using an assembler, type 352:EA EA [return] from monitor and resave the file.

**REQUEST FOR CHANGE OF ADDRESS**

Dear A.P.P.L.E.,
I am moving and my present address is:

**PRESENT:**

NAME _____

ADDRESS _____

CITY _____

STATE _____ ZIP CODE _____

EFFECTIVE DATE _____

**NEW ADDRESS:**

NAME _____

ADDRESS _____

CITY _____

STATE _____ ZIP CODE _____

MEMBERSHIP NUMBER _____

*Please fill out and return this notice two weeks before moving.

# CONSULTANTS

| | | |
|---|---|---|
| John A. Hall, Jr. | Apple //e (Eastern U.S.) | (617) 241-9050 |
| Cecil Fretwell | Apple //e (MidWestern U.S.) | (319) 236-0961 |
| Bob Huelsdonk | Apple /// (Western U.S.) | (206) 362-4910 |
| Harry T. Hanson | Apple /// (Eastern U.S.) | (201) 467-0712 |
| Carmen Picardi | Apple /// (Eastern U.S.) | (603) 895-4447 |
| Stuart Yusem | Apple /// (Eastern U.S.) | (609) 822-9306 |
| Tim Smith | Apple /// (Midwestern U.S.) | (389) 734-7451 |
| Neil Clemmons | Agriculture | (314) 968-9618 |
| Erv Edge | Assembly (Alaska) | (907) 337-7620 |
| Dennis Baumgarte | Assembly (Eastern U.S.) | (914) 298-8756 |
| Don Williams | Assembly (Western U.S.) | (206) 242-6807 |
| Michael Thyng | Business | (206) 524-2744 |
| Murray Arnow | CPM/Engineering Applications | (312) 291-9210 |
| Steven E. Blair | Data Bases | (913) 782-5901 |
| Jerry Rogan | Data Bases, Business | (319) 332-4166 |
| William P. Steinberg | DOS (Eastern U.S.) | (212) 921-0663 |
| Art Schumer | DOS (Northern U.S.) | (701) 282-7907 |
| Lee Meador | DOS (Southern U.S.) | (817) 469-6019 |
| Kurt Thams | DOS/Gen'l (Western U.S.) | (415) 327-2116 |
| WM. Reynolds III | DOS/Tech (Western U.S.) | (503) 472-4028 |
| Ted Perry | Education | (916) 485-1690 |
| Cornelis Bongers | European Consultant | 010-525511 Ext. 3275 |
| Alan Robinson | Fortran | (503) 757-8234 |
| Jim Eatherly | Games | (202) 232-6046 |
| Tedd Sperling | Geoscience | (517) 393-1296 |
| Stan Axelrod | Hardware Design/I-O Control | (415) 563-1840 |
| Tom Deal, M.D. | Handicapped Applications | (206) 634-2847 |
| Randy Halvorson | Hardware Interfacing | (206) 783-9040 |
| Ed So | Hi-Res | (408) 267-3448 |
| Stowe Keller | Mathematics | (804) 973-7647 |
| Fred Merchant, M.D. | Medical Group | (415) 921-7792 |
| Stephen F. Lee | Music | (704) 289-4102 |
| Tom Woteki | Pascal (Eastern U.S.) | (202) 547-0984 |
| Tim Smith | Pascal (Midwestern U.S.) | (309) 734-7451 |
| Paul E. Sleeper | Pascal (Western U.S.) | (415) 494-1915 |
| Bruce E. Sargent | Pascal (Western U.S.) | (206) 488-1161 |
| Dennis R. Cohen | Pascal (Western U.S.) | (213) 956-8559 |
| Randy Warrens | Pilot Language | (608) 837-9566 |
| Hersch Pilloff | Stock Market | (301) 292-3100 |
| Jim Hockenhull | Video Interfacing | (509) 334-4137 |
| George L. Hefter | VisiCalc (East) | (617) 256-8148 |
| Jerry Brieger | VisiCalc (West)/Epson | (206) 881-1241 |
| Vince Aderente | VisiCalc (North) | (312) 289-9685 |
| Dr. Bob Richard | VisiCalc (South) | (504) 466-0894 |
| Brian Abrahams | VisiCalc (South Africa) | (Durban) 315442 |
| Michael Ginsberg | Word Processing | (805) 688-1465 |

# AD INDEX


| | |
|---|---|
| A.P.P.L.E. | 73 |
| Action Research NW | 56 |
| Apogee Inc. | 30 |
| Apple Computer | 40, 41 |
| Anthro Digital | 56 |
| Avant Garde Creations | 44, 45 |
| Beagle Brothers | 14 |
| B&D Electronics | 53 |
| Bytes & Pieces | 78 |
| Cases, Inc. | 63 |
| Central Point Software | 39 |
| Computer Case Co. | 49 |
| David-Data | 52 |
| Digital Acoustics Inc. | 42 |
| Golden Delicious Ltd. | 58 |
| Gourmet Software | 61 |
| Laing Electronics | 54, 61 |
| Leading Edge Products | IFC, BC |
| LJK, Inc. | IBC |
| Magellan Computer | 64 |
| Micro Max | 64 |
| MicroPro International | 46 |
| Mijo | 51 |
| Nibble | 77 |
| Omega Microware | 50 |
| Orange Micro | 36, 37 |
| Orbital Systems | 52 |
| Penguin Software | 60 |
| Pleasure Point Enterprises | 64 |
| Professional Data Systems | 20 |
| Sierra On-Line | 61 |
| Sof/Sys Inc. | 51, 63 |
| Softkey Publishing | 66 |
| Softraders | 66 |
| Software Banc | 78 |
| Software Masters | 54 |
| Software Research Corp. | 51 |
| Southwestern Data Systems | 4 |
| Star Logic | 50 |
| 3M Data Recording Products | 8 |
| Tackaberry Software | 69 |
| Telephone Software Connection | 19 |
| Tinker Tron | 62 |
| Transtar | 1, 71 |
| United Computer | 6 |
| Vista Computer | 48 |
| Zoom Telephonic | 34 |


**FOREIGN MEMBERS: Please calculate postage based on weights in product descriptions. (See postage table below for cost)**

## FOREIGN SHIPPING CHART

| POSTAL TABLE | | I W. Indies C. America Columbia Venezuela | II S. America (except in Table I) Europe, N. Afr. | III Asia, Mid East, S. Africa, Australia Pacific Is. |
|---|---|---|---|---|
| 0 oz | 1 oz | $0.50 | $0.60 | $0.70 |
| 1 | 2 | .76 | .96 | 1.16 |
| 2 | 3 | 1.02 | 1.32 | 1.62 |
| 3 | 4 | 1.28 | 1.68 | 2.08 |
| 4 | 6 | 1.54 | 2.14 | 2.74 |
| 6 | 8 | 1.80 | 2.60 | 3.40 |
| 8 | 10 | 2.06 | 3.06 | 4.06 |
| 10 | 12 | 2.32 | 3.53 | 4.72 |
| 12 | 14 | 2.58 | 3.98 | 5.38 |
| 14 | 16 | 2.84 | 4.44 | 6.04 |
| 16 | 18 | 3.10 | 4.90 | 6.70 |
| 18 | 20 | 3.36 | 5.36 | 7.36 |
| 20 | 22 | 3.62 | 5.82 | 8.02 |
| 22 | 24 | 3.88 | 6.28 | 8.68 |
| 24 | 26 | 4.14 | 6.74 | 9.34 |
| 26 | 28 | 4.40 | 7.20 | 10.00 |
| 28 | 30 | 4.66 | 7.66 | 10.66 |
| 30 | 32 | 4.92 | 8.12 | 11.32 |
| 2 lbs | 2.5 | 5.96 | 9.96 | 13.96 |
| 2.5 | 3.0 | 7.00 | 11.80 | 16.60 |
| 3.0 | 3.5 | 8.04 | 13.64 | 19.24 |
| 3.5 | 4.0 | 9.08 | 15.48 | 21.88 |
| Each additional ½ pound over 4 pounds add: | | 1.04 | 1.84 | 2.64 |

**CANADA SHIPPING RATES**

| Up to: | |
|---|---|
| 1 | .20 |
| 2 oz | .37 |
| 3 oz | .54 |
| 4 oz | .71 |
| 5 oz | .88 |
| 6 oz | 1.05 |
| 7 oz | 1.22 |
| 8 oz | 1.39 |
| 9 oz | 1.56 |
| 10 oz | 1.73 |
| 11 oz | 1.90 |
| 12 oz | 2.07 |
| 1 lb | 2.58 |
| 2 lbs | 3.10 |
| 3 lbs | 4.10 |
| 4 lbs | 5.10 |
| 5 lbs | 6.10 |
| 6 lbs | 7.10 |
| 7 lbs | 8.10 |
| 8 lbs | 9.10 |
| 9 lbs | 10.10 |
| 10 lbs | 11.10 |

For weights over 10 lbs, add $1.00 per pound.

## ORDER FORM

Membership # _____ Expiration date _____ Date _____

Name _____ Address _____

City _____ State/Country _____ Zip _____ Phone _____

| | PRODUCT | Unit Price | *FOREIGN SHIPPING WT. | AMOUNT |
|---|---|---|---|---|
| 1 | | | | |
| 2 | | | | |
| 3 | | | | |
| 4 | | | | |
| 5 | | | | |

Mail to:
A.P.P.L.E.
21246 68th Ave. S.
Kent, WA 98032
(206) 872-2245

VISA* Account No. _____ Exp. Date _____

MasterCard Account No. _____ Exp. Date _____

Subtotal _____

**Washington sales tax _____

TOTAL AMOUNT _____

*Foreign Members Only
**Washington state residents add 7.9% sales tax.
Sorry, no foreign hardware orders.

# UNCLASSIFIEDS — A.P.P.L.E ORDERS

## Call -A.P.P.L.E. (un)Classifieds

Members Non-commercial rate .05/word
Members commercial rate .25/word
All others: 1.00/word, $25 minimum
Send ad copy with payment to editorial office. Unclassified copy must be received by the first day of the month preceding the date of issue.

RENT SOFTWARE $5 MONTHLY. No membership fee. Call (206) 784-2081 or send SASE to: Preowned Software, 4229 Baker Ave. NW, Seattle, WA 98107 for details.

AIR NAVIGATION TRAINER. Features VOR's, NDB's, ADF, adjustable winds, ground-track map and more. Call or write for more info. SPACE-TIME ASSOCIATES, 20-39 Country Club Drive, Manchester, NH 03102, (603) 625-1094, MC and VISA, CL0393 and 70310,217 US$40.

**GET THE BEST AUTO-REPEAT KEYBOARD ENHANCER for your Apple II or II+** - AUTOREP 1.3 - Fully adjustable time delay for auto-repeat after any keypress plus adjustable high-speed repeat with "Rept" key. Easy plug-in installation. Small size won't interfere with long accessory cards (e.g. 80-column). On/off switch accessible from outside Apple for convenience with games, etc. Special terminal for easy connection of shift-key adapters. Highest quality throughout, 1 year warranty. Fits all Apples with plug-in encoder board (late Rev-6 on). **SHIFTKEY 1.0** - The best way yet to make the game I/O shift-key modification. Just plug it in. Full access to game socket maintained. AutoRep 1.3 only $19.95. Shift-Key 1.0 only $5.95 for use with AutoRep (SK-AR) or $6.95 with general purpose microclip connector (SK-MC). Free First Class Air Mail postage and handling throughout U.S. Send check, m.o., or VISA/MC number (with exp. date). APPLE CLUBS please write for discounts. Dealer inquiries invited. PACIFIC COMPUTER ACCESSORIES, Dept. JCA, P.O. Box 25730, Honolulu, HI 96825.

COMPUTER ROAD ATLAS - Start your next trip with a computer listing showing the best route. ROADSEARCH computes and prints the shortest practical route with miles, time and gallons. Contains 406 USA/Canada cities and 69,000 road miles. DOS 3.3. Ten day MONEYBACK GUARANTEE. $34.95 (plus $1.50 shipping) Check/VISA/MC. Columbia Software, Box 2235M, Columbia, MD 21045. (301) 997-3100.

GOLDCOAST COMPUTER RENTAL & SALES, 3000 programs available for rent or sale. "Rent to buy - but try before you buy." Software, firmware, hardware, publications, Goldcoast Computer, 2014 Triplett St., Owensboro, KY 42302.

THE CHEAP ASSEMBLER. An Apple assembler with: ten command text editor, two pass RAM/disk based assembly, free field programming, interactive operation, tutorial manual and demonstration routines on disk. APPLE ][+, 48K, DOS 3.3 required. Send $20.00 + $4.00 P&H to: Thunder Software, P.O. Box 31501, Houston, TX 77231.

MICROMOVER transfers files from one Apple to another Apple over a phone line. Files may be transferred without first being converted to text files. Data compression algorithm cuts transfer time. Disk-to-disk transfer of one, some or all files on a disk with minimum operator intervention. Works with DOS 3.2 or 3.3 and Hayes Micromodem II, acoustic modems and other modem types. Only one copy of the program need be purchased as it transfers a copy of itself to the distant end, if required. An excellent manual is included. Cost is $50.00 from DAB Systems, 9116 Rockefeller Lane, Springfield, VA 22153.

CARCADE! A fast action arcade shooting game with fresh ideas you will enjoy. Why pay thirty to forty dollars for a game from a large company? CARCADE is just as playable and good and is really 11 games in one. Each one is different and challenging and fun. Play the first ten to score points for the final fast action game. Or practice any one game separatly. CARCADE is not protected! Pitch in with your friends and make copies for all. It is written in the best language for fast action arcade games: assembly. There are 8 skill levels and 1 to 4 can play. Take a chance on CARCADE. You won't be sorry! Send $9.95 check or money-order to: Steve Walloch, 22315 6th Ave. So. #406, Des Moines, WA 98188. Requires an Apple computer, 48K, and paddles.

COLLEGE-LEVEL EDUCATIONAL SOFTWARE dealing with skeletal muscle, movement, electromyography, electrode placement, and the cardiovascular system. TESTING SOFTWARE including comprehensive clinical interview, MMPI, WAIS-R, WISC-R, and physical fitness assessment. LIGHT PENS at affordable prices. Biosource Software, 2105 S. Franklin -B, Kirksville, MO, 63501. (816) 665-3678.

PAYPAC-JOB COST PAYROLL MANAGEMENT PACKAGE. Maximize profits through the accurate tracking and controlling of your company's labor costs. Prepare your entire company's payroll, tax deposits, and reports, quickly, easily, and inexpensively. Track up to 1000 jobs, 300 operations, 225 employees, 5 departments, 8 divisions. $350.00/A.P.P.L.E. members $300.00. Sky Software, 103 Lexinton Ave., Passaic, NJ 07055, (201) 779-3399.

APPLE PASCAL ANIMATION GRAPHICS Morwe/Graphics - 83 pp. manual and two diskettes. SASE for details. $3.95 for manual. **-$19.95-** for complete kit. HENDERSON ASSOCIATES, 980 Henderson Ave., Sunnyvale, CA 94086.

FRENCH AND MULTI-LINGUAL Software for the Apple ][+ or //e. FREE CATALOG. LE PROFESSEUR, P.O. Box 301A, Swanton, Vermont 05488, (514) 747-9130.

LOW APPLE SOFTWARE PRICES! Up to 30% off. Check out our fantastic prices. Write for our FREE price list! KERR SOFTWARE, Box 5301-CA, Long Beach, CA 90805. Or call (213) 428-8193.

FOR SALE: New with warranty cards - Apple ][ parallel interface card - $125; Saturn Systems VC-Expand 80 Visicalc expansion software - $15; Easywriter - $40; Easymailer - $25; Lanny R. Ream, P.O. Box 1154, Coeur d'Alene, Idaho 83814, (208) 667-0453.

TYPEWRITER PRINTER INTERFACE FOR SALE - The Dynatyper fits over most electric typewriters, plunges the keys, and serves as a printer. Software driven. Needs work. Extra parts, software, and manual included. Cost $500. Best offer as is (cash or software). Saul Feldman, 1290 25th Avenue, #206, San Francisco, CA 94122. (415) 681-5364. Source ST9999, Compuserve 72135,1602.

POWERTEXT word processor. Complete software system includes original manual and disks with Apple Pascal and is latest version 1.72A. Requires two drives, Language Card and printer. Normally sells for $299.00. Send M.O. for $125.00 and I'll pay shipping. (201) 728-1272 (NJ) after 7 PM.

APPLE PASCAL SOFTWARE DEVELOPERS. Move up to the next generation. SAGE II or SAGE IV — The 16-bit supermicro with the best price/performance ratio. Comes with Softech's IV.1 UCSD p-System, code compatible with IV.0/IV.1 Apple Pascal. Sage system includes UCSD PASCAL, FORTRAN 77, compiled BASIC, 68000 MACRO ASSEMBLER and Sage configuration & utility programs. SAGE II with 2 80-track drives (128OK), 2 serial ports, real-time clock, 1 parallel port, IEEE port and 128K RAM is $3300 (reg $4400). Sage IV is the winchester version and has 4 extra serial ports and up to 1 megabyte of RAM. A 12 megabyte Sage IV with one 640K floppy is only $5588 (reg $7850). For information contact MARITIME SOFTWARE ASSOCIATES, 6660 Reservoir Road, Corvallis, OR 97333 or phone (503) 929-2552.

## PRODUCTS NOW AVAILABLE TO A.P.P.L.E. MEMBERS

### Call -A.P.P.L.E. Specials

| | | |
|---|---|---|
| PSID | In Depth Magazine Special | $25.00[2] |
| SSIN | In Depth Diskette Special | $40.00[2] |
| HAKK | Summer Cooling Special | $17.50[2] |

### Back Issue Specials

| | | |
|---|---|---|
| PSCA10 | Group of ten | $20.00 |
| PSCA15 | Group of 15 | $24.00 |
| PSCA20 | Group of 20 | $28.00 |
| PSCA25 | Group of 25 | $32.00 |

No Phone Orders

### A.P.P.L.E. LIBRARY

| | | |
|---|---|---|
| PAO1 | "Apple Orchard" No. 1 (magazine) | $ 2.50 |
| PAUG | Apple Users Guide | $13.00 |
| PASL | Assembly Lines: The Book | $17.00 |
| PBAD | "Beneath the Apple DOS" | $17.00 |
| PCP1 | "Best of Cider Press" (S.F. Newsletter Annual) Vol. 1 | $ 4.50 |

Call -A.P.P.L.E. Annuals

| | | |
|---|---|---|
| PPK2 | 1979 | $10.00 |
| PPK3 | 1980 | $15.00 |
| PPK4 | 1981 | $18.50 |
| PPK5 | 1982 | $18.50 |

Call -A.P.P.L.E. In Depth

| | | |
|---|---|---|
| PID1 | 1: All About Applesoft | $ 7.00 |
| PID2 | 2: All About Pascal | $11.00 |
| PID3 | 3: All About DOS | $13.50 |
| PKID | Kids and the Apple | $16.00 |
| PVIS, PVI2 | Power of VisiCalc Vol. 1 or 2, ea. | $ 8.50 |
| PU65 | Using 6502 Assembly Language | $17.00 |
| PWTA | Woz Talks (VHS Video cassette) | $27.50 |

### AS IS SOFTWARE

| | | |
|---|---|---|
| SPDS | Public domain diskettes ea. (Send 37¢ S.A.S.E. for list of titles) | $ 4.00 |
| SSEA | Eamon Adventure Diskettes ea. | $ 4.00 |

### A.P.P.L.E. DISKPAKS

| | | |
|---|---|---|
| SA1, SA2, 3, 4, 5, 6, 7, 8, 9A, 9B | Call -A.P.P.L.E. Anthology Vols 1-9B incl. ea. | $12.50 |
| SDIC | DICE 82[7] | $12.50 |
| SD6B | Diskpak 6B-16 (DOS 3.3 disk utility) | $18.50 |
| SD7 | Diskpak 7 | $17.50 |
| SIN1 | In Depth 1 Diskette | $16.50 |
| SIN2 | In Depth 2 Diskette Set | $20.00 |
| SIN3 | In Depth 3 Diskette Set | $15.00 |
| SPA1 | Pascal Anthology '81 | $12.50 |

### A.P.P.L.E. HARDWARE

| | | |
|---|---|---|
| HAPC | ApController | $85.00 |
| HAKK | Ap Coolkit | $20.00 |
| HAPD | Ap DRIVE | $240.00 |
| HAPD, HAPC | Ap DRIVE with Controller | $325.00 |
| HLC1 | Ap L Case 1 | $30.00 |
| HLC2 | Ap L Case 2 (Lower case chip) | $25.00 |
| HDBA | Disk Banks | $ 4.50 |

### AP• Jewelry

| | | |
|---|---|---|
| HPIN | Lapel pin | $ 3.00 |

### A.P.P.L.E. PRESTIGE Game Diskettes

| | | |
|---|---|---|
| SCCO | Cosmic Combat | $12.50 |
| SMCU | Mummy's Curse | $12.50 |

### Apple Prestige Product LinE

| | | |
|---|---|---|
| SAPM | Ampermanager | $22.50 |
| SAPF | APfile — Text file utility | $18.50 |
| SFLR | ApGraphics: The Filler | $17.00 |
| SAM3 | Apmail ][ Version 3.0 | $30.00 |
| SCAR | Applesoft Carpenter | $18.50 |
| SAPT | Aptest | $18.50 |
| SMLC | Big Mac Macro-Assembler/Ted | $28.50 |
| SGPL | Global Program Line Editor | $38.50 |
| SHFI | Higher Fonts 1 | $13.00 |
| SHTP | Higher Text Plus | $27.50 |
| SPGE | Program Global Editor | $18.50 |
| SPLE | Program Line Editor | $20.00 |
| SS70 | Soft Seventy | $20.00 |
| | Symbol Symon | $20.00 |
| STSS | THE Spreadsheet Version 2.0 | $60.00 |
| STSC | THE Spreadsheet 1→2 File Converter | $ 5.00 |
| SWW3 | WordWeaver /// | $75.00 |

[2] Expires Aug. 31, 1983
[7] $7.50 with Ap L Case 1
$10.00 with Ap L Case 2

**Diskettes supplied on DOS 3.3 except as noted.**

**NOTICE TO FOREIGN MEMBERS:**
A.P.P.L.E. Hardware products not available to overseas or foreign members.

Washington state residents add 7.9% state sales tax.

**ORDER FORM ON REVERSE**

# Data work.

# It's simple.

Now **Data Perfect**™ from LJK helps you organize your files and numbers like the adding machine first helped your grandfather. It keeps tax records. Lets you change files easily. List and edit addresses. Compares stocks. Stores expenses. It even calculates. Used with Letter Perfect™, you can even make custom mailings. Simply.

When it comes to practical software for Ataris, Apples and look alikes, Data Perfect is simple to learn. And hard to beat. Ask your dealer for a demonstration, or write LJK for more information.

LJK, INC. • 7852 Big Bend Blvd., St. Louis, MO 63119 • (314) 962-1855

© LJK Inc. 1983

Circle 37 on Reader Service Card

# TRUNKS FOR THE MEMORIES.

Introducing the most logical place to store Elephant Memory Systems® (or lesser brands of disks): The Trunk.

With its alphabetized library index, you can file or retrieve up to 60 disks, instantly.

The Trunk is made of durable molded plastic with a hinged, one-piece lid, to keep disks safe from dust, dirt, and other detriments which disks despise.

And, it's portable. Because the lid doubles as a carrying handle so your Elephant Memory Systems® disks can go anywhere you do.

There's a model for 5¼″ and 8″ floppies, as well as a cassette-and-game file and a special Atari® version.

So if you're looking for the best disk storage system on the market . . .

The Trunk is an open-and-shut case.

# THE TRUNK. ENDORSED BY ELEPHANTS.

**Elephant Memory Systems® Disks**

*A full line of top-quality floppies, in virtually every 5¼" and 8" model, for compatibility with virtually every computer on the market. Guaranteed to meet or exceed every industry standard, certified 100% error-free and problem-free, and to maintain its quality for at least 12 million passes (or over a life-time of heavy-duty use).*

*Marketed exclusively by Leading Edge Products, Information Systems and Supplies Division, 55 Providence Highway, Norwood, MA 02062. Dealers: Call toll-free 1-800-343-8413; or in Massachusetts, call collect (617) 769-8150.*

Circle 19 on Reader Service Card